



Pima County Department of Transportation

Biological Evaluation

Valencia Road: Alvernon Way to Wilmot Road

Pima County Project No. 4VAKDP



June 2011

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1.0 PROJECT LOCATION

The project is located in eastern Pima County, in the southeast corner of the Tucson metropolitan region on Valencia Road between Alvernon Way and Wilmot road in the City of Tucson and Unincorporated Pima Count, Pima County, Arizona (Figure 1 – Project Location). The cadastral location of this segment of road is Township 15 South, Range 14 East, Sections 10, 11, 12, 14 and 15; Township 15 South, Range 15 East, Section 7 on the Tucson and Tucson East, Arizona, US Geological Survey (USGS) 7.5-minute topographic series map (Figure 2 – Project Vicinity). The project limits occur on secured right-of-way (R/W) belonging to Pima County or the City of Tucson.

Throughout this Biological Evaluation (BE) the term “project limits” is used to represent the construction footprint (area of disturbance), while the term “project area” also includes surrounding lands, outside but adjacent to the project limits. The term “project vicinity” is used to denote a more expansive landscape context.

2.0 PROJECT DESCRIPTION

The proposed project involves the widening and reconstruction of Valencia Road from 900 feet east of Alvernon Way to 750 feet east of Wilmot Road, a total length of approximately 3.25 miles (Figure 3 – Project Setting). The proposed project will include widening the roadway under the existing I-10 bridges, widening the existing bridge over the Union Pacific Rail Road (UPRR), realigning Littletown Road and adding signalization at the new intersection, and improving turn lanes on Benson Highway/Swan Road, Craycroft Road, and Wilmot Road.

Valencia Road between South Alvernon Way and South Wilmot Road is currently a four-lane, curbed, divided road with traffic signals at the intersections of Swan Road, Interstate 10 (I-10) and South Wilmot Road. The existing roadway has four 12-foot wide travel lanes, two bicycle lanes within the striped road shoulder, and a stormdrain system. I-10 spans Valencia Road with two four-span concrete bridges. Valencia Road spans the UPRR tracks with a three-span concrete bridge.

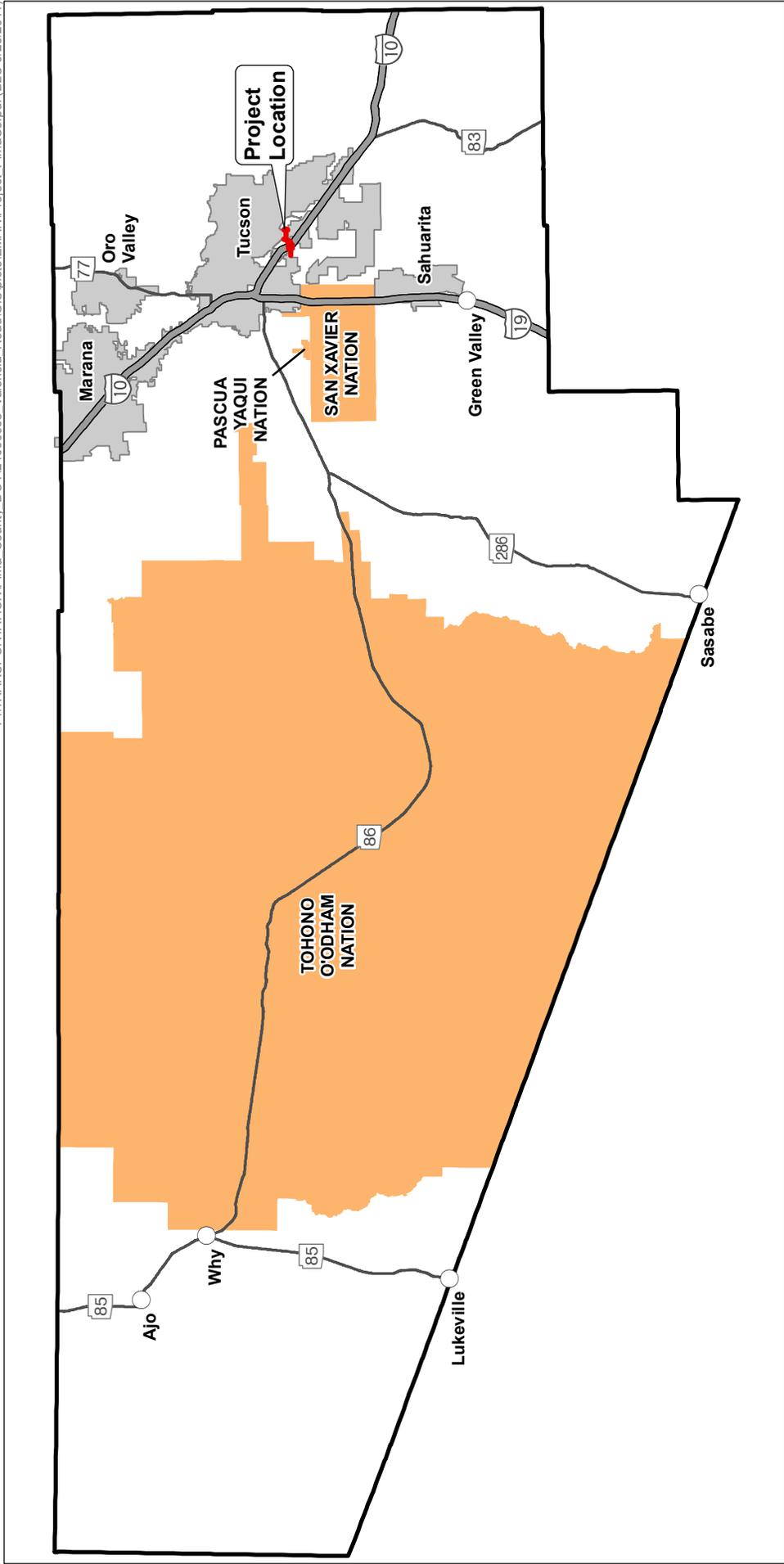
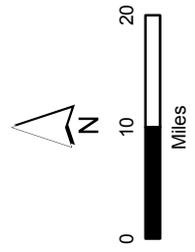


Figure 1

County Map

- Legend**
- Project Location
 - Town
 - Interstate Highway
 - State Route
 - Indian Reservation
 - Pima County



Valencia Road:
Alvernon Road to Wilmont Road (4VAKDP)

Source:
Project Site: 2010
Base Map: ALRIS 2010,
Pima County 2009 - 2010
Roads: ADOT 2009



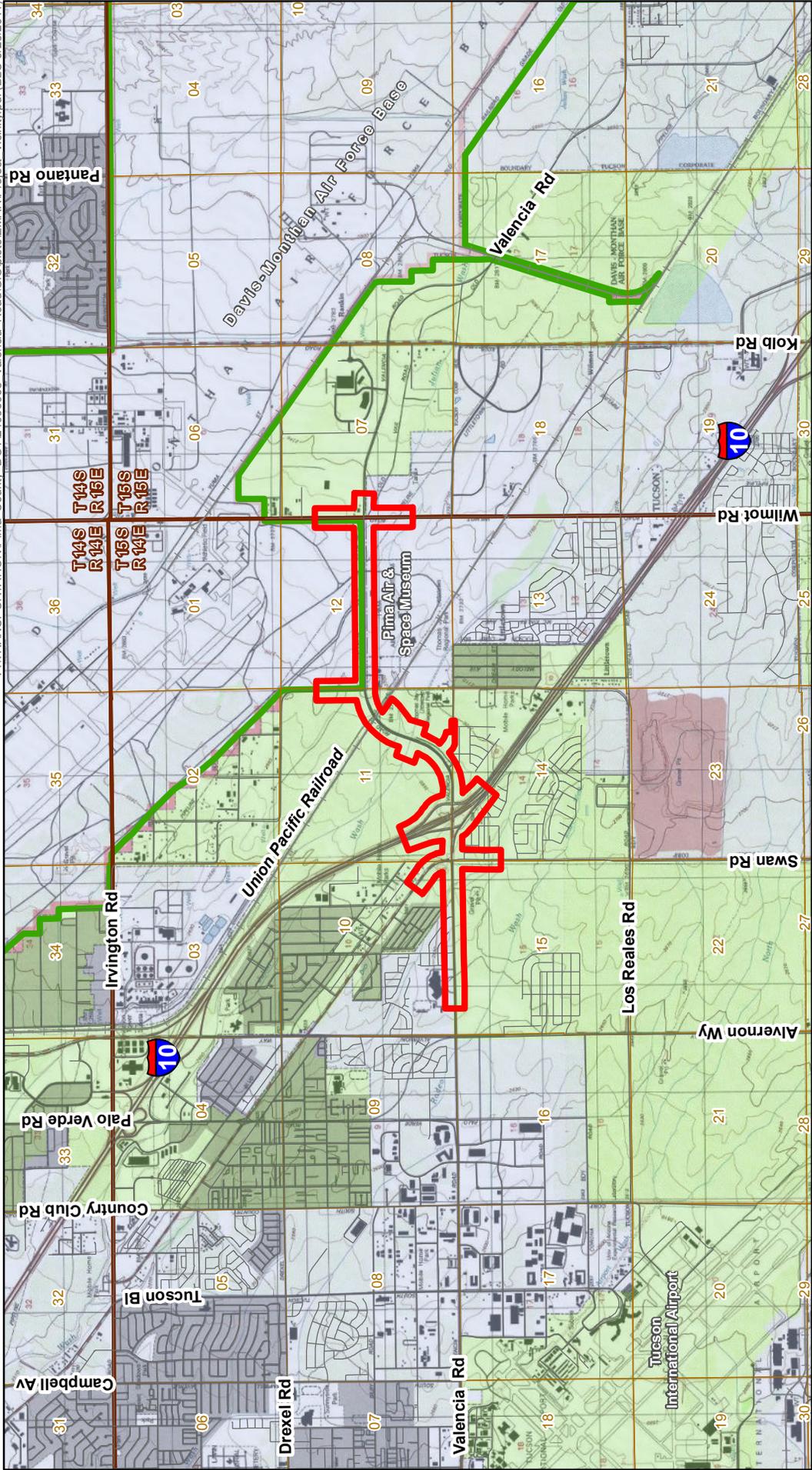
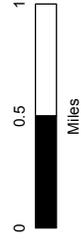


Figure 2

Project Vicinity

Legend

- Project Area
- Road
- Railroad
- Jurisdictional Boundaries
 - Unincorporated Pima County
 - Tucson
 - Davis Monthan Air Force Base
- Township and Range Boundary
- Section Boundary



Valencia Road:
Alvernon Road to Wilmont Road (4VAKDP)

Source:
Project Area: URS 2010 - 2011
Base Features: Pima County DOT 2009 - 2010.
ALPIS 1997 - 2010
Base topographic data: © 2009 National Geographic Society. All Rights Reserved



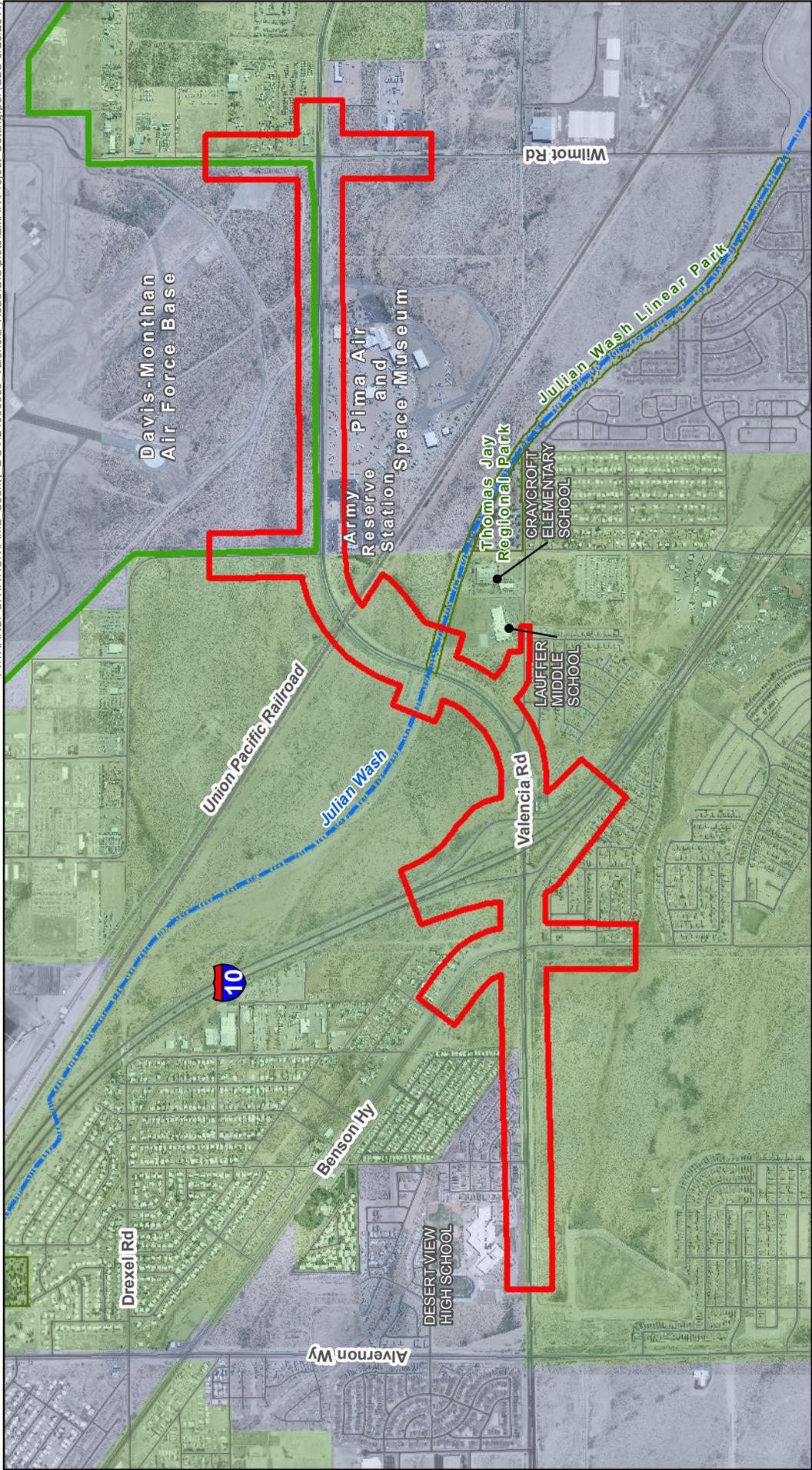


Figure 3

Project Setting

- Legend**
- Project Area
 - Jurisdictional Boundaries
 - Unincorporated Pima County
 - Tucson
 - Davis Monthan Air Force Base
 - Road
 - Railroad
 - Wash
 - Parks

Valencia Road:
Alvernon Road to Wilmont Road (4VAKDP)

Source:
Project Area: URS 2010 - 2011
Base Features: Pima County DOT 2009 - 2010
Imagery: PAG 2008, NAIP 2007



The proposed project involves the widening of Valencia Road between South Alvernon Way and South Wilmot Road, and includes the construction of the following specific improvements:

- Widen Valencia Road from a four-lane roadway to a six-lane divided roadway (three lanes eastbound and three lanes westbound) between South Alvernon Way and South Wilmot Road.
- Widening Valencia Road under the existing I-10 bridges to six lanes.
- Widening the existing bridge over the UPRR to six lanes.
- Realigning Littletown Road and adding signalization at the new intersection.
- Improve pedestrian mobility through the provision of 6-foot sidewalks and 6-foot multi-use lanes for bicycle access.
- Install landscaping improvements in the medians and the roadway shoulders to the R/W-of-way limit.
- Detours are not anticipated.

R/W widths along the Valencia Road corridor vary. To the west of I-10, the R/W is nominally between 225 and 250 feet and is not centered on the roadway, while to the east of I-10 it is nominally 150 feet wide and is generally centered on the roadway. Limited drainage easements, slope easements, and temporary construction easements may be required. No new R/W needs are anticipated as part of the proposed project.

The proposed improvements to the drainage structures throughout the project include culvert extensions, new culverts, culvert replacements, stormdrain lateral extensions, stormdrain mainline upsizing, construction of new catch basins and area inlets, and may include channel or ditch modifications. Roadside channels will be reconstructed as necessary to maintain existing capacity. Stormdrain grate inlets located along the south side of the roadway will be relocated as necessary, shifting their location to the south. No additional channels or grate inlets are anticipated. Existing culverts will be extended or reconstructed to ensure the headwater elevation is below the edge of pavement. The existing concrete box culvert at Julian Wash will be extended to move the culvert out of the roadway clear zone. An additional culvert will be required under a new turnout located east of Littletown Road.

Two named washes (the Earp Wash and Julian Wash) and three storm drain channels are within the project area. Preliminary site reconnaissance indicate that these drainages are Waters of the United States (Waters). A jurisdictional delineation will be completed to ascertain the location and extent of Waters within the project area. Work within Waters is anticipated to affect less



than 0.5 acre at each crossing and, therefore, would be covered by a Clean Water Act (CWA) Section 404 Nationwide Permit (NWP) #14. Should impacts to Waters exceed 0.5 acre per crossing, a CWA Section 404 Individual Permit would be required.

Project construction will temporarily disturb and expose soil along the R/W and temporarily introduce potential stormwater pollutants associated with construction equipment and materials. Soil disturbance and excavation will also occur in washes during installation of flood control features (culverts, intake structures, etc.). CWA Section 401 water quality permit would be included under a NWP #14. If a CWA Section 404 Individual Permit is required, an individual Section 401 water quality permit would be required from the Arizona Department of Environmental Quality (ADEQ). Because the project will disturb more than one acre of land, the project will require a CWA Section 402 authorization. Compliance can be obtained by filing a Notice of Intent (NOI) with ADEQ to use the statewide Construction General Permit, along with the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP).

The proposed project limits includes approximately 95 acres that will be impacted by construction. The project area will be accessed from existing Valencia Road and from major street crossings. Staging areas are yet to be determined; however, a likely location could include five Pima County owned parcels east of Valencia Road between the Julian Wash and UPRR totaling approximately 15 acres. The project limits are comprised primarily of previously disturbed bare ground with scattered areas of vegetation dominated by disturbance-related vegetation that include both native and invasive non-native species. Impacts to native vegetation will occur primarily along the Julian Wash (less than 0.5 acres of impact) and the potential staging area (approximately 15 acres of impact). Project construction is scheduled to begin in Fall 2013 and expected to last 18 to 24 months.

Construction of the proposed improvements will cause temporary noise impacts associated with the operation of construction equipment during site clearing, earthwork/grading, foundation preparation, and base preparation. Construction equipment operations can vary from intermittent to fairly continuous, with multiple pieces of equipment operating concurrently.

3.0 LOCATION DESCRIPTION

The project area is located in the northern Sonoran Desert biotic region and southern portion of the Basin and Range physiographic province. The topography is punctuated with northwest-southeast trending mountain ranges of fault-block of volcanic origin that are separated by intervening, lowland basins. Despite the scarce, erratic, and unreliable precipitation and the high



summer temperatures, this region supports one of the most diverse biotic communities in the United States and is the most biologically diverse of the North American deserts.

The existing terrain varies little along the project area. The elevation from west to east trends upward slightly and uniformly. The western boundary lies at about 2,650 feet and the eastern boundary rises to about 2,750 feet.

Vegetation associations and landcover in the project area include Sonoran palo verde mixed-cactus desert scrub, Sonoran creosotebush bursage desert scrub, disturbed invasive herbaceous-shrub complex, and urban developed areas. These are based on field observation, descriptions in Brown (1994) and Southwest ReGAP landcover associations mapped in the project area (USGS, National GAP Analysis Program 2004).

Common overstory species surveyed in the project area included blue palo verde (*Parkinsonia floridum*), velvet mesquite (*Prosopis velutinia*), desert hackberry (*Celtis pallida*), whitethorn acacia (*Acacia constricta*), and catclaw acacia (*Acacia greggii*). Mid-canopy species included creosotebush (*Larrea tridentata*), triangle-leaf bursage (*Ambrosia deltoidea*), desert broom (*Baccharis sarothroides*), threadleaf snakeweed (*Gutierrezia microcephala*), and gray thorn (*Ziziphus obtusifolia*). Uncommon species in these areas included Anderson desert thorn (*Lycium andersonii*), Berlandier desert thorn (*Lycium berlandieri*), brittlebush (*Encelia farinosa*), and galleta grass (*Pleuraphis rigida*).

Creosotebush triangle-leaf bursage desertscrub occurred in upper, level parts of the project area where soils were arid and fine-textured. Creosotebush and triangle-leaf bursage were the dominant species. Other common species included chain fruit cholla (*Opuntia fulgida* var *fulgida*), Arizona pencil cholla (*Cylindropuntia arbuscula*), compass barrel cactus (*Ferocactus wislizenii*), desert zinnia (*Zinnia acerosa*), bahia (*Bahia absinthifolia*), woolly crincklemat (*Tequilia canescens*), and fluff grass (*Dasyochloa pulchella*).

Between I-10 and Julian Wash the desertscrub vegetation includes stands of succulents. The predominant species include compass barrel cactus, chain fruit cholla, and sprawling prickly pear (*Opuntia phaeacantha*) with shrub species that were characteristic desertscrub habitats described previously.

The project limits were dominated by disturbance-related vegetation that included both native and invasive non-native species. The most abundant native species included velvet mesquite, four-wing saltbush (*Atriplex canescens*), and desert broom. The most common invasive species included Russian thistle (*Salsola tragus*), Bermuda grass (*Cynodon dactylon*), buffelgrass (*Pennisetum ciliare*), and windmill grass (*Chloris virgata*). Less common non-natives included



salt cedar (*Tamarix* sp.), and Mexican paloverde (*Parkinsonia aculeata*), which had begun to encroach on the project area and project limits.

Within the project limits, six ephemeral drainages have been identified. Three of the drainages are stormdrain channels, three are sparsely vegetated ephemeral washes including the Earp Wash which crosses Valencia Road west of Swan Road. The Julian Wash is a moderately densely vegetated ephemeral wash dominated by desert broom and velvet mesquite which crossing Valencia Road east of Littletown Road.

Soils in the project area consisted of upland and wash soil series. Upland soils are typically gravelly on the surface and parts of the subsurface and range in texture from fine sandy loam to loam (Natural Resources Conservation Service [NRCS] 2010). Wash soils are typically loam at the surface and clay loam or clay in the subsurface horizons (NRCS 2010).

4.0 SPECIES IDENTIFICATION

Twenty-five (25) federally listed species from the U.S. Fish and Wildlife Service (USFWS) threatened, endangered, proposed, and candidate species list for Pima County were considered in this BE. The USFWS list of endangered, threatened, proposed, and candidate species for Pima County (USFWS 2008a) was accessed and reviewed by a qualified biologist (Dr. Robert DeBaca, URS Corporation). For purposes of this assessment, federally listed species include endangered, threatened, proposed, or candidate species as defined in the Endangered Species Act (ESA) of 1973, as amended. The federally listed species used in this report was developed from the USFWS Arizona Ecological Field Office website list of federally listed species for Pima County. The species list for Pima County maintained by the USFWS contains 14 endangered, 2 threatened, and 7 candidate species (USFWS 2010a) (Appendix A). AGFD's On-line Environmental Review Tool (Appendix B) was queried for the occurrence of special-status species known to occur in the project vicinity. Species identified as potentially affected by implementation of the proposed project were retained for evaluation in this BE and are presented in Table 1. Species included in the USFWS list, but excluded from further evaluation are listed in Table 2.

The field reconnaissance of the project area was conducted October 7, 2010 by PCDOT's consultant (Robert DeBaca, URS Corporation). The data that were collected included: (1) the description and location of major vegetation types, topographic features, and natural and human influences that might affect the occurrence of special status species; (2) opportunistic wildlife observations; and (3) a list of common plant species.



The potential for occurrence of federally listed species in the project area was evaluated based on (1) pertinent scientific literature, (2) qualitative comparisons between the known habitat requirements of each species and biotic and abiotic conditions found in the project area, and (3) field surveys. Of the 25 federally listed species, 23 were eliminated from further consideration because the project area is either outside of the known geographic or elevational range of the species, or (2) it does not contain useable habitat for the species. Two additional species managed under a conservation agreement also were eliminated from further consideration. The Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*) and lesser long-nosed bat (*Leptonycteris yerbabuenae*) are evaluated further in this report (Section 5: Species Evaluation).

Additional information regarding species is contained in Appendix C, D, E, and G. Appendix C includes an evaluation of the Arizona state sensitive species that could occur or are known to occur within 3 miles of the project study area. Appendix D provides an evaluation of migratory bird species protected under the Migratory Bird Treaty Act and Appendix E lists the protected native plants that occur within the project study area. Photographs of the project area are included in Appendix F. Appendix G evaluates impacts to Pima County Priority Vulnerable Species.

Table 1 Special-Status Species Considered for Evaluation

Common Name	Scientific Name	Status Federal/State
Lesser Long-nosed Bat	<i>Leptonycteris yerbabuenae</i>	Endangered
Pima Pineapple Cactus	<i>Coryphantha scheeri</i> var. <i>robustispina</i>	Endangered



Table 2 Special Status Species Excluded from Detailed Evaluation

Species	Status ¹	Habitat Requirements	Exclusion Justification
1. California Least Tern <i>Haliaeetus leucocephalus</i>	Endangered	Open, bare or sparsely vegetated sand, sandbars, gravel pits, or exposed flats along shorelines of inland rivers, lakes, reservoirs, or drainage systems (USFWS 2009).	The project area does not contain any shore or stream habitats that would be used by the California least tern.
2. Chiricahua Leopard Frog <i>Rana chiricahuensis</i>	Threatened	Streams, rivers, backwaters, ponds, and stock tanks mostly free from introduced fish, crayfish, and bullfrogs. Require permanent or nearly permanent water sources. (USFWS 2002a).	The project area does not contain permanent or nearly permanent water sources required by Chiricahua leopard frogs.
3. Desert Pupfish <i>Cyprinodon macularius</i>	Endangered	Shallow springs, small streams, and marshes. Tolerates saline and warm water below 5,000 feet (USFWS 2000b).	The project area does not contain springs, streams, or marshes required by the desert pupfish.
4. Gila Chub <i>Gila intermedia</i>	Endangered	Pools, springs, cienegas, and streams between 2,000 and 3,500 feet. (USFWS 2003b).	The project area does not contain pools, springs, cienegas, or streams required by the Gila chub.
5. Gila Topminnow <i>Poeciliopsis occidentalis occidentalis</i>	Endangered	Small streams, springs, and cienegas (vegetated shallows) below 4,500 feet (USFWS 2001a).	The project area does not contain streams, springs, or cienegas required by the Gila topminnow.
6. Huachuca Water Umbel <i>Lilaeopsis schaffneriana</i> ssp. <i>recurva</i>	Endangered	Cienegas, perennial low gradient streams, wetlands between 3,500 and 6,500 feet (USFWS 2001c).	The project area does not contain cienegas or streams required by the Huachuca water umbel.
7. Jaguar <i>Panthera onca</i>	Endangered	Found in Sonoran desertscrub up through subalpine conifer forest (USFWS 2000c).	The project area does not contain lowland wet habitat or oak-pine forest common to jaguar.
8. Kearney Blue Star <i>Amsonia kearneyana</i>	Endangered	West-facing drainages in the Baboquivari Mountains between 3,600 and 3,800 feet (USFWS 2001d).	The project area is outside the known geographic range of the Kearney blue star.
9. Masked Bobwhite <i>Colinus virginianus</i>	Endangered	Desert grasslands with diversity of dense native grasses, forbs, and brush between 1,000 and 4,000 feet (USFWS 2002b).	The project area is outside the known geographic range of the masked bobwhite
10. Mexican Spotted-owl <i>Strix occidentalis lucida</i>	Threatened	Nests in canyons and dense forests with ponderosa or mixed conifer forest associations that have a multilayered foliage structure (USFWS 2008b).	The project area is outside the known geographic range of the Mexican spotted owl.



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Species	Status ¹	Habitat Requirements	Exclusion Justification
11. Nichol Turk's Head Cactus <i>Echinocactus horizionthalonius</i> var. <i>nicholii</i>	Endangered	Found in unshaded microsities in Sonoran desertscrub on dissected alluvial fans at the foot of limestone mountains and on inclined terraces and saddles on limestone mountainsides between 2,400 and 4,100 feet (USFWS 2002e).	The project area is outside the known geographic range of the Nichol Turk's head cactus.
12. Ocelot <i>Leopardus pardalis</i>	Endangered	Humid tropical and sub-tropical forests, savannahs, and semi-arid thornscrub below 8,000 feet (USFWS 2002d).	The project area is outside the known geographic range of the ocelot.
13. Sonoran Pronghorn <i>Antilocapra americana sonoriensis</i>	Endangered	Broad intermountain alluvial valleys with creosote-bursage and palo verde-mixed cacti associations between 2,000 and 4,000 feet (USFWS 2002e).	The project area is outside the known geographic range of the Sonoran pronghorn.
14. Southwestern Willow Flycatcher	Endangered	Cottonwood/willow and tamarisk vegetation communities along rivers and streams below 8,500 feet (USFWS 2001g).	The project area does not contain riparian vegetation with potential to support the southwestern willow flycatcher.
15. Mountain Plover <i>Charadrius montanus</i>	Proposed Threatened	Semi-desert grasslands and agricultural lands with sparse vegetation or vegetation interspersed with bare ground and flat topography (USFWS 2010b).	The project area does not contain habitat for the mountain plover.
16. Northern Mexican Gartersnake <i>Thamnophis eques megalops</i>	Candidate	Found in cienegas, stock tanks, large-river riparian woodlands and forests, and streamside gallery forests from 130 to 8,500 feet elevation (USFWS 2006).	Project area is outside the known geographic range of the species and lacks habitat with standing water.
17. Rosemont talussnail <i>Sonorella rosemontensis</i>	Candidate	Inhabits talus slopes comprised of volcanic rock and limestone. ~5,500 ft (USFWS 2011).	Project area does not contain talus slopes comprised of volcanic rock and limestone.
18. Sonoyta Mud Turtle <i>Kinosternon sonoriense longifemorale</i>	Candidate	Found in ponds and streams at about 1,100 feet elevation. In Arizona, found only in Quitobaquito Springs in Organ Pipe Cactus National Monument (USFWS 2000e).	Project area lacks habitat and is outside the geographic range of the Sonoyta mud turtle
19. Tucson Shovel-nosed Snake <i>Chionactis occipitalis klauberi</i>	Candidate	Sonoran desertscrub in creosote-mesquite floodplain environments, between 785 and 1,662 feet elevation; associated with soft, sandy soils having sparse gravel (USFWS 2010c).	Project area is outside the geographic range of the Tucson shovel-nosed snake.
20. Western Yellow-billed Cuckoo <i>Coccyzus americanus occidentalis</i>	Candidate	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk gallery forests) below 6,500 feet. Perennial water not essential (2003c).	The project area does not contain riparian woodland vegetation for the western yellow billed cuckoo



Species	Status ¹	Habitat Requirements	Exclusion Justification
21. Goodding’s Onion <i>Allium goodingii</i>	Conservation Agreement	Forested drainage bottoms and on moist north facing slopes of mixed conifer and spruce fir forests below 7,500 feet (USFWS 2001b).	The project area is outside the known geographic range and does not have a north facing aspect that is known to support the Goodding’s onion.
22. San Xavier talussnail <i>Sonorella eremita</i>	Conservation Agreement	Inhabits a deep, northwest-facing limestone rockslide on a 50 by 100 foot area of land in Pima County. Elevation ranges from 3,850 to 3,920 feet (USFWS 2001f).	Project area is outside the known geographic and elevational range of the San Xavier talussnail and lacks habitat for the species.
23. Cactus Ferruginous Pygmy-owl <i>Glaucidium brasilianum cactorum</i>	Petitioned for relisting	Areas of desert woodlands with tall canopy cover. Primarily found in Sonoran desert scrub and occasionally in riparian drainages and woodlands within semi-desert grassland communities. Prefers to nest in cavities in saguaro cacti but has been found in low-density suburban developments that include natural open spaces. Found below 4,000 feet (USFWS 2008a).	The project area does not contain woodland vegetation with potential to support the cactus ferruginous pygmy-owl.

Source: USFWS Species List Pima County May 11, 2011

¹**Status Definitions**

Endangered: The ESA specifically prohibits the “take” of a species listed as endangered. Take is defined by the ESA as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to engage in any such conduct.”

Threatened: The ESA specifically prohibits the “take” of a species listed as threatened. Take is defined by the ESA as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to engage in any such conduct.”

Candidate: Species for which USFWS has sufficient information on biological vulnerability and threats to support proposals to list as Endangered or Threatened under ESA. However, proposed rules have not yet been issued because such actions are precluded at present by other listing activity.

Conservation Agreement: Formal agreements between the Service and one or more parties to address the conservation needs of proposed or candidate species, or species likely to become candidates, before they become listed as endangered or threatened.

5.0 SPECIES EVALUATION

5.1 PIMA PINEAPPLE CACTUS

5.1.1 Life History Information

Status

Pima pineapple cactus (PPC) is a distinct plant population in Arizona that was federally listed as endangered on September 23, 1993 (58 FR 49875) without designated critical habitat (USFWS 1993). A draft recovery plan was completed for the species but has not been sent out for public review (USFWS 2007). The PPC underwent one five-year review of its listing, which was published in 2007 (USFWS 2007). Findings of this review recommended no change to its listing status.



Species Description

The PPC is a striking hemispherical cactus that measures 10 to 46 cm (4 to 18 in.) tall and 7.5 to 18 cm (3 to 7 in.) in diameter (USFWS 2000d). Each spine cluster has one strong, central spine that is usually hooked and 6 to 15 straight radial spines surrounding the central one (USFWS 2000d). The spines are stout, usually straw colored but become almost black with age (USFWS 2000d). Plants can be single-stemmed, multi-headed, or can appear in clusters that form when seeds germinate at the base of a mother plant or when a tubercle of the mother plant roots (USFWS 2000d). Flowers are silky, yellow, or rarely white, and the fruits are green, ellipsoid, succulent, and sweet (USFWS 2000d).

Range

The PPC is geographically restricted to southeastern Arizona, specifically the valley floors between the Baboquivari Mountains on the west and the Santa Rita Mountains to the east, and in low densities in the northern areas of Sonora, Mexico. The northern end of the species' range is near the southern part of Tucson. Baker (2005) found that there are distinct geographic gaps between the distribution of this subspecies and that of the nearest subspecies in New Mexico. As a consequence of its general habitat requirements, considerable suitable habitat for this species appears to exist in Pima and Santa Cruz counties, much of which is unoccupied (USFWS 2007).

Habitat

PPC has very broad habitat requirements. PPC grows in alluvial basins or on hillsides in semi-desert grassland and Sonoran desertscrub in southern Arizona and northern Mexico (USFWS 2000d). It often occurs in the ecotone between desertscrub and desert grassland (USFWS 2000d). Soils range from shallow to deep, and silty to rocky, with a preference for silty to gravely deep alluvial soils (USFWS 2000d). The plant occurs most commonly in open areas on flat ridge tops or areas with less than 10-15 percent slope (USFWS 2000d). The PPC is found at elevations below 4,000 feet (AGFD 2001).

Investigations to better define suitable habitat have had inconclusive results. In 2002, an evaluation of the environmental data collected during two PPC surveys showed that coppice mounds (piles of fine surface material) were strongly associated with PPC locations (McPherson 2002). Coppice mounds form around any above-ground feature in areas supporting PPC, including around other PPC (USFWS 2007). In this study, the surface substrate that PPC associated with most often included gravel and litter (McPherson 2002). PPC also associated with a moderate cover of herbs and woody shrubs and most often occurred with desert zinnia (*Zinnia* sp.), snakeweed (*Gutierrezia sarothrae*), burroweed (*Isocoma tenuisectus*), and buckwheat (*Eriogonum* spp.) (USFWS 2007). However, the five variables in the study were poor



predictors of PPC occurrence overall (McPherson 2002), these only described 25 percent of the variability in PPC localities.

USFWS (2007) investigated the geological association of PPC and found these cacti are most often associated with alluvium of a wide variety of ages. High PPC densities typically occur on surfaces in active and recently active alluvial fans and highly eroded gravelly alluvium of late Pliocene to early Pleistocene age (USFWS 2007). These substrates are common in valley bottoms in the geographic range of PPC, and with so much unoccupied habitat in the range, this is not a conclusive method of characterizing suitable habitat.

The model of PPC habitat used in Pima County's Multi-Species Conservation Plan (MSCP) (RECON 2006) defined habitat by elevation, slope, aspect, and surface geology. This data layer has been successful in capturing all of the known PPC locations (USFWS 2007).

Biology

The overall biology of this species is poorly known. Most of what is known about the PPC has come from surveys as part of Section 7 consultations in meeting the requirements of the Endangered Species Act (USFWS 2007).

The population density of PPC is typically low. Reported densities range from a low of 1 plant per 21 acres to a high of 1 plant per 4.6 acres (NatureServe 2010). Much habitat that seems adequate is unoccupied, and populations can be widely separated (USFWS 2007).

PPC can reproduce from seed or from vegetative offshoots. Flowering parallels the arrival of summer rains (mid-July through August) (USFWS 2010d). The bloom period is short, with each plant producing flowers only over a one to three day period (USFWS 2010d). The species does not self-pollinate in the wild, and the major pollinator is a ground-nesting, solitary, native bee (*Diadasia rinconis*) (USFWS 2010d, 2007). Also, PPC plants need to be within about 600 meters of one another in order to facilitate effective pollination (USFWS 2007), and nearby stands of other species of cacti helps to attract more pollinators, increasing the likelihood of successful pollination.

Fruits mature in about two weeks and are evident on the plant in August and September with rabbits and rodents acting as seed dispersers (USFWS 2010d). Young plants are not often found, and it is uncertain if this is due to difficulty in locating small plants or if seedling establishment is low (USFWS 2007).

The National Fish and Wildlife Foundation and USFWS have sponsored recent studies in the Altar Valley to better understand the demographics of the species. Between 2002 and 2003 about



a 3 percent mortality rate and two seedlings were recorded in the baseline of the study (USFWS 2007). Between 2003 and 2005 the mortality increased to include a loss of 13.5 percent of the population (USFWS 2007). This study is ongoing.

Habitat loss and modification are the major threats to this species. Urban development within the geographic range of PPC has been rapid and was a leading cause for its original listing (USFWS 1993, 2007). Urban development and other ground disturbing activities such as mining, livestock grazing, off-highway vehicle use, and other forms of recreation remove or degrade natural vegetation and fragment remaining populations and habitats (USFWS 2010d). Habitat modification from disturbance and the proliferation of non-native grass species such as buffelgrass, and lovegrass (*Eragrostis* sp.) may directly decrease the suitability of an area for PPC (USFWS 2007) by increasing cover and competition for limited resources like water (USFWS 1993, 2000d). Also the spread of these grass species increases the frequency and intensity of wildland fire in an area, which can lead to indirect mortality of plants in these areas (USFWS 2007, 2010d).

5.1.2 Site Survey

The USFWS has developed a recommended survey protocol to identify most or all of the PPC in an area (Roller 1996). Surveys are recommended in suitable habitat. This process involves surveying by belt transects spaced at a standard distance and running multiple passes from different directions. The PPC is typically difficult to locate, particularly immature plants, in its native habitat.

A baseline survey of the full project limits and nearby project area was completed on 7 October 2010. Most of the area within the project limits was highly disturbed and dominated by non-native grasses in the existing R/W. Dense grasses occupy a drainage channel along the shoulder in section 15, which is the most likely section to support PPC. This channel defines the project limits in this segment of Valencia Road and is bordered by one or two wide pedestrian or vehicle access paths. A preliminary sampling transect in section 15 meandered between 0 and 100 meters from the edge of disturbance. The only cacti observed were Arizona pencil cholla, chain fruit cholla, and compass barrel cactus. A further description of habitat suitability is described in the next section.

5.1.3 Habitat Evaluation and Suitability

A records inquiry using Arizona Game and Fish Department's (AGFD) Online Environmental Review Tool indicated that one or more records of PPC occur within 2 to 3 miles of the project limits (AGFD 2010). However, results from this tool do not provide specific locality records; the nearest occurrence is likely on undeveloped land south of the proposed project.



The results of Pima County's habitat modeling for the MSCP categorize Section 15 within the project limits as low potential habitat for PPC and as medium potential habitat in most of the adjacent project area in this section. As mentioned previously this part of the project area also is designated as a priority conservation area for the PPC. The remainder of the project limits is modeled as low potential habitat for PPC. There is no proposed or designated critical habitat for the PPC within the project limits.

The project limits are dominated by disturbance-related vegetation that includes both native and invasive non-native species. The composition of species along the R/W was described previously. The drainage channel in section 15 was heavily vegetated with buffelgrass, windmill grass, Bermuda grass, lovegrass, mustards, slender ragweed (*Ambrosia confertifolia*), wire lettuce (*Lactuca* sp.), and other disturbance-related plants. The high amount of water, dense vegetation, and surrounding disturbance would make this unsuitable habitat for PPC.

Vegetation in the remainder of section 15 would be characterized as creosote-bursage desert-scrub with scattered elements of Sonoran paloverde-mixed cactus desertscrub. Many of the plant associates of PPC also occur there. These included desert zinnia, snakeweed, and burrobrush. The land in this section exhibited a great amount of ground disturbance caused by wildcat pedestrian trails that crisscross between local housing developments.

5.1.4 Analysis and Determination of Effects

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat. The action and effects of other activities that are interrelated or interdependent with that action will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

5.1.4.1 Direct Effects

The proposed project will not result in direct disturbance to areas that support potential PPC habitat. The proposed project limits will only incorporate disturbed land within the established R/W that is dominated by disturbance-related vegetation.

5.1.4.2 Indirect Effects

The proposed project will not result in the indirect disturbance of areas that support potential habitat for the PPC. Nor will the proposed project have indirect effects on individual PPC that are known to exist two to three miles outside of the proposed project limits.



5.1.4.3 Cumulative Effects

The project area is subject to ongoing residential and commercial development pressures. Some individual undeveloped parcels within the project area may not require a federal permit or have any other federal nexus and will continue to be built. This is particularly important due to the possibility of undeveloped parcels that, when developed, may further reduce the amount of suitable habitat, increase fragmentation, and degrade habitat conditions in the northern tip of the geographic range for the PPC. Future sale of State Land in section 15 may allow future development that could reduce the size of potential habitat for the PPC in the project area. The proposed project should have no effect on residential and commercial development outside of the project limits.

5.1.5 Determination of Effects

Review of the current information, data, and published resources about the PPC in conjunction with a field survey provided the environmental baseline for the project area. This combined with an analysis of the direct and indirect effects of the proposed action, and cumulative effects for the project area, would result in no effect to the PPC.

5.2 LESSER LONG-NOSED BAT

5.2.1 Life History Information

Status

The lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*) was listed (originally, as *Leptonycteris sanborni*; Sanborn's long-nosed bat) as endangered in 1988 (USFWS 1988). No critical habitat has been designated for this species. A recovery plan was completed in 1997 (USFWS 1997). Loss of roost and foraging habitat, as well as direct taking of individual bats during animal control programs, particularly in Mexico, have contributed to the current endangered status of the species. The recovery plan states that the species will be considered for delisting when three major maternity roosts and two post-maternity roosts in the U.S., and three maternity roosts in Mexico have remained stable or increased in size for at least five years, following the approval of the recovery plan. The five-year review has been completed and recommends downlisting to threatened (USFWS 2007a).

Species Description

Previously named as Sanborn's long-nosed bat (*Leptonycteris sanborni*), the lesser long-nosed is one of three genera in Phyllostomidae in Arizona (AGFD 2003). One of two or three species (depending on the authority) in genus; *L. curasoae* is the only species in genus occurring in Arizona (AGFD 2003). Despite a complicated taxonomic history, presently the most accepted



name for the group that includes those that migrate to Arizona seems to be *Leptonycteris curasoae yerbabuena* (AGFD 2003). There is only 1 subspecies found in Arizona.

The lesser long-nosed bat is a medium-sized bat with grayish to reddish-brown fur. Juveniles have gray fur. Its elongated rostrum bears a small, triangular nose-leaf, its ears are relatively small and simple in structure, and it has a minute tail (USFWS 1997).

Distribution and Abundance

The lesser long-nosed bat is found throughout its historical range from southern Arizona and extreme southwestern New Mexico through western Mexico and south to El Salvador. Arizona and New Mexico are at the extreme northern edge of the lesser long-nosed bat's range. The species is found in southern Arizona from the Picacho Mountains southwest to the Agua Dulce Mountains and southeast to the Chiricahua Mountains. In New Mexico, it occurs in the Animas and Peloncillo Mountains. The species is not present in Arizona or New Mexico in the winter (Hinman and Snow 2003). Occasionally, individuals have been reported outside of this range; for example, there are records of individuals from the Phoenix area and the Bill Williams River during July and August.

Recent information indicates that lesser long-nosed bat populations appear to be increasing or stable at most Arizona roost sites identified in the recovery plan (USFWS 2007a). Lesser long-nosed bat populations additionally appear to be increasing or stable at other roost sites in Arizona and Mexico not included for monitoring in the recovery plan (USFWS 2007a). Less is known about lesser long-nosed bat numbers and roosts in New Mexico. Though lesser long-nosed bat populations appear to be doing well, many threats to their stability and recovery still exist.

Approximately 17 large lesser long-nosed bat roost sites, including maternity and late-summer roosts, have been documented in Arizona (USFWS 2007a). Of these, 11 late-summer and 3 maternity roosts are monitored on an annual basis depending on available resources. Monitoring in Arizona in 2004 documented approximately 72,615 lesser long-nosed bats in late-summer roosts and approximately 34,615 in maternity roosts (USFWS 2007a). Ten to 20 lesser long-nosed bat roost sites in Mexico are also monitored annually. Over 100,000 lesser long-nosed bats are found at just one natural cave at Pinacate National Park, Sonora, Mexico (Cockrum and Petryszyn 1991). These indicate that although a relatively large number of lesser long-nosed bats exist, the relative number of known large roosts is quite small.

Habitat

Within the United States, habitat types for the lesser long-nosed bat include Sonoran Desert scrub, semidesert and plains grasslands, and oak and pine-oak woodlands. Farther south, the



lesser long-nosed bat occurs at higher elevations. Two sets of resources, suitable day roosts and suitable concentrations of food plants, are critical for the lesser long-nosed bat. Caves and mines are used as day roosts, with documentation showing that the species will fly long distances from roost sites to forage (Dalton et al. 1994, USFWS 1997). Factors that identify potential roost sites as being “suitable” have not yet been identified, but maternity roosts tend to be very warm and poorly ventilated (USFWS 1997). Such roosts reduce the energetic requirements of adult females while they are raising their young (Arends et al. 1995).

Roosts in Arizona are occupied from April to as late as early November (Cockrum and Petryszyn 1991); although the species has been recorded in winter at hummingbird feeders in Tucson. In spring, adult females, most of which are pregnant, arrive in Arizona and gather into maternity colonies in southwestern Arizona. These roosts are typically at low elevations in Sonoran Desert scrub near concentrations of flowering columnar cacti and paniculate agaves. After the young are weaned, maternity colonies typically disband in July and August; some females and young move to higher elevations, ranging up to more than 6,000 ft (1,829 m), primarily in southeastern Arizona near concentrations of blooming paniculate agaves. Dates of these seasonal movements by lesser long-nosed bats are rather variable from one year to the next (Cockrum and Petryszyn 1991, Fleming et al. 1993). Adult males are not commonly encountered in the U.S. and typically occupy separate roosts, forming bachelor colonies. Adult males are known mostly from the Chiricahua Mountains, but also are occasionally found with adult females and young of the year at maternity roosts (USFWS 1997).

Like many other bats, individuals of this species use night roosts for digesting their meals. These roosts include the bats’ day roosts as well as other caves, mines, rock crevices, trees and shrubs, and occasionally abandoned buildings (Cockrum and Petryszyn 1991, Hoyt et al. 1994). The extent to which night roosts represent essential habitat in this species is currently unknown.

Food and Foraging Habitat: Food requirements of the lesser long-nosed bat are very specific. The lesser long-nosed bat is a nectar-, pollen-, and fruit-eating bat, primarily feeding upon Palmer’s agave (*Agave palmeri*), Parry’s agave (*A. parryi*), desert agave (*A. deserti*), and amole (*A. schotti*). Cacti fed upon include saguaro (*Carnegiea gigantea*) and organ pipe cactus (*Stenocereus thurberi*). Because of its very specific food requirements, the lesser long-nosed bat is considered a major pollinator and seed disperser of columnar cacti (e.g., saguaros) and paniculate agaves. A panicle is a compound inflorescence in which the central stem (main stem) bears flowering branches which are themselves branched again. Agaves that produce flowers in this arrangement are called paniculate agaves.



Adequate numbers of flowers and/or fruits are required within foraging range of day roosts and along migration routes to support large numbers of this bat. Location of good feeding sites therefore plays an important role in determining availability of potential roosting sites, and roost/food requirements must be considered jointly when discussing the habitat requirements of this bat. Ober et al. (2000) calculated that a population of 100,000 bats would need an average density of 0.16 flowering plants/ha over a 1,456 mls² (3,771 km²) foraging area surrounding a roost. However, density over a broad area is probably less of a determinant than arrangement of food plant populations and density of flowering plants within those populations. A suitable day roost is probably the most important habitat requirement, but potentially suitable roosts must be within reasonable foraging distances of sufficient amounts of required foods before they will be used by this species.

The lesser long-nosed bat is known to fly long distances from roost sites to foraging sites. Night flights from maternity colonies to flowering columnar cacti have been documented in Arizona at distances of at least 30 miles (Dalton et al. 1994). Individuals typically utilize temporary night roosts, where they rest between foraging activities. Lesser long-nosed bats are efficient fliers, capable of flight speeds up to 14 miles (23 km) per hour (Sahley et al. 1993), and often foraging in flocks. Horner et al. (1990) stated that the foraging behavior of *L. curasoae* is characterized by relatively long commuting flights, consistent short-term use of a foraging area, occasional long forays to night roosts or other areas, and visits to many flowers scattered over many plants. The species spends the early part of the evening visiting plants without feeding, apparently to gather information on the location of open flowers, and then do most of their feeding between 9:00 p.m. and 2:00 a.m. after flowers have accumulated substantial amounts of nectar (Horner 1990, USFWS 2007a).

Ober et al. (2000) presents evidence that lesser long-nosed bats select areas with both high resource abundance and evidence of high resource abundance in previous years (old floral stalks), suggesting site fidelity to agave stands. The seasonal dietary specialization of lesser long-nosed bats implies that a reduction in, or further fragmentation of, agave populations could have serious effects on bat behavior, forcing them to commute farther, roost in suboptimal roosts, or compete with one another for food at remaining plants. These effects would be especially evident during years of low flower production, when energy expended by bats would be appreciably higher.

Activities that adversely affect the density and productivity of columnar cacti and paniculate agaves may adversely affect populations of lesser long-nosed bats (USFWS 1997). Excess harvest of agaves in Mexico, collection of cacti in the U.S., and conversion of habitat due to urban expansion, agricultural uses, livestock grazing, and other development may contribute to



the decline of long-nosed bat populations (USFWS 1988). Activities that directly or indirectly promote invasions or increased density of non-native grasses, particularly Lehmann lovegrass, species of *Bromus*, and Mediterranean grass (*Schismus barbatus*), may result in increased fire frequency and intensity (Minnich 1994). Sonoran Desert scrub vegetation is not adapted to fire. It seems evident that the lesser long-nosed bat forages over wide areas and that large roosts require extensive stands of cacti or agaves for food. Therefore, destruction of food plants many miles from a roost could have a negative impact on this bat (USFWS 1997).

5.2.2 Site Surveys

A baseline survey of the full project limits and nearby project area was completed on 7 October 2010. The project area was surveyed for the presence of roosts sites, forage plants, or indices of bat use. Results of the habitat survey indicate no day roost sites, forage plants, or indices of bat use (i.e. fecal stains) were observed in the project limits. The drainage culvert at the Julian Wash, the bridge at the UPRR crossing and the I-10 underpass could serve as temporary night roosts; however, no indices of bat use were observed at these locations. Furthermore, lesser long-nosed bats appear to be sensitive to human disturbance (USFWS 1997) and the levels of disturbance at these locations may discourage use of these potential roost sites by lesser long-nosed bats. The project vicinity does contain saguaro (forage plant), large eucalypts trees and buildings that could potentially serve as temporary night roost sties. Lesser long-nosed bats are known to use roost sites of trees and shrubs, and occasionally abandoned buildings (Cockrum and Petryszyn 1991, Hoyt et al. 1994). However, no indices of bat use were observed at these locations.

5.2.3 Habitat Evaluation and Suitability

The species range includes all of Cochise, Pima, and Santa Cruz Counties and extends as far north as Lake Pleasant in Maricopa County, Arizona. The project area, located in the central Tucson Basin (Figure 1 Project Location), is within the geographic range of the lesser long-nosed bat. The project area represents only a small portion of the lesser long-nosed bat's range. The AGFD has no occurrence records of lesser long-nosed bat within 3 miles of the project area (AGFD 2010). There is no proposed or designated critical habitat for the lesser long-nosed bat within the project limits.

Three major maternity roosts and six major post-maternity roosts are known in Arizona and are identified in the Recovery Plan (USFWS 1997). Individuals of the species can move long distances (about 40 mi (64 km)) from roosts to foraging habitats. The three major maternity roosts [Bluebird Mine, Cabeza Prieta NWR; Copper Mountain Mine, Organ Pipe Cactus National Monument; and Old Mammon Mine, Tohono O'odham Nation (near Casa Grande)] are not within the 40-mile (64 km) radius of the project area. Two of the six major post-maternity



roosts in Arizona occur within 40 miles of the project area and include (1) Box Canyon Crevice, Saguaro National Park and (2) Cave of the Bells, Santa Rita Mountains. Post-maternity roosts are typically transitory roosts used by adults and/or young bats in summer or fall (Fleming 1995). Other records within a 40-mile (64 km) radius of the project area include: (1) Madera Canyon, Santa Rita Mountains; (2) Empire Ranch north of Sonoita; and (3) Colossal Cave, Pima County (USFWS 1997). Table 3 lists the distance of the project area from known roost sites within 40 miles.

Table 3 Distance to Known Roost Sites within 40-mile (64 km) Radius of the Project Area

Name of Roost Site	Distance to Roost Site from Project Area
Box Canyon Crevice, Saguaro National Park	> 10 miles (16 km)
Cave of the Bells, Santa Rita Mountains	> 29 miles (47 km)
Colossal Cave, Pima County	> 15 miles (24 km)
Empire Ranch north of Sonita	> 28 miles (45 km)
Madera Canyon, Santa Rita Mountains	> 28 miles (45 km)

Source: USFWS 1997

A habitat evaluation of the project area was completed by a URS Corporation biologist on 7 October 2010. While lesser long-nosed bats are known to use roost sites of trees and shrubs, and occasionally abandoned buildings (Cockrum and Petryszyn 1991, Hoyt et al. 1994), no indices of bat use (i.e. fecal stains) were observed at these locations. Furthermore, disturbance levels within the project area may discourage use of these potential roost sites by lesser long-nosed bats.

The lesser long-nosed bat is a nectar-, pollen-, and fruit-eating bat, primarily feeding upon agave, and columnar cacti. Adequate numbers of flowers and/or fruits are required within foraging range of day roosts and along migration routes to support large numbers of this bat. Flowering cacti species were observed in the project area (fish-hook barrel cactus, teddy bear cholla, and jumping cholla); however these cacti species are not known forage plants for the lesser long-nosed bat. No agave or columnar cacti (e.g. saguaro and organ pipe) were observed in the project area.

5.2.4 Analysis and Determination

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration.



Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

The primary threat to lesser long-nosed bat is roost disturbance or loss. No roost sites were observed in the project area. While lesser long-nosed bats are known to use roost sites of trees and shrubs, and occasionally abandoned buildings, no indices of bat use (i.e. fecal stains) were observed at these locations and disturbance levels at the existing park may discourage use of these potential roost sites by lesser long-nosed bats. The vegetation and buildings within the existing park would not be removed or modified by the proposed improvements. As a result, the proposed action would have no effect, direct or indirect, on lesser long-nosed bat roost sites.

Loss of foraging habitat is also an important threat to lesser long-nosed bats. Lesser long-nosed bats are directly affected by development, which removes forage habitat, but also indirectly as growing numbers of people increase the potential for roost disturbance. The impacts to lesser long-nosed bat habitat are of greatest concern because they tend to be permanent, long-term disturbances, as opposed to the often temporary, shorter-term impacts from fire, grazing, and agave harvesting (USFWS 2007a). Flowering cacti species were observed in the project area (fish-hook barrel cactus, teddy bear cholla, and jumping cholla); however these cacti species are not known forage plants for the lesser long-nosed bat. No agave or columnar cacti (e.g. saguaro and organ pipe) were observed in the project area. No foraging habitat would be lost as a result of the proposed action. Therefore, the proposed action would have no effect on lesser long-nosed bat forage habitat.

5.2.4.1 Direct Effects

The proposed project will not result in direct disturbance to areas that support potential lesser long-nosed bat habitat. The proposed project limits will incorporate disturbed land within the established R/W that is dominated by disturbance-related vegetation.

5.2.4.2 Indirect Effects

The proposed project will not result in the indirect disturbance of areas that support potential habitat for the lesser long-nosed bat. Nor will the proposed project have indirect effects on individual lesser long-nosed bat.

5.2.4.3 Cumulative Effects

The project area is subject to ongoing residential and commercial development pressures. Some individual undeveloped parcels within the project area may not require a federal permit or have any other federal nexus and will continue to be built. This is particularly important due to the possibility of undeveloped parcels that, when developed, may further reduce the amount of



suitable habitat, increase fragmentation, and degrade habitat conditions in the geographic range for the lesser long-nosed bat. The proposed project should have no effect on residential and commercial development outside of the project limits.

5.2.5 Determination of Effects

After reviewing the current habitat requirements of the lesser long-nosed bat, the lack of roost and forage habitat resources in the project area, the proposed action would have “no effect” on the lesser long-nosed bat or its habitat.

6.0 MITIGATION MEASURES

The following mitigation measures will be taken:

- Revegetation of impacted areas along the R/W and construction staging areas, where necessary.
- Revegetation efforts will comply with the Pima County Environmental Sensitive Roadway Design Guidelines.
- Mitigation measures will be developed in cooperation with the Pima County Regional Flood Control District to compensate for impacts to regulated riparian habitat.
- Revegetation will include U.S. Army Corps of Engineers recommended mitigation measures as required by any Nationwide Permits that may be obtained for this project.
- The CWA Section 404 Nationwide Permit No. 14, Preconstruction Notice will include an in-lieu-fee to the Corps
- Landscaping installed within the project median and R/W will be in accordance with the Pima County Department of Transportation Landscape and Irrigation Design Guidelines and the Pima County Roadway Design Manual.
- The Arizona Community Tree Council’s Guide to Arizona Desert Shade Trees will be used as a resource in the selection of shade trees for placement near overhead electric power lines.
- Placement of landscaping will consider the extensive network of existing underground utilities in the project area and follow the appropriate sight distance requirements.
- A Buffelgrass Eradication plan would be completed to address treatment of infested areas.



7.0 AGENCY COORDINATION

The following agencies provided information on local occurrences, regional distribution, and habitat requirements to PCDOT:

USFWS, Arizona Ecological Services Field Office

- List of threatened and endangered species for Pima County, Arizona
- Threatened and endangered species abstracts
- Threatened and endangered species range maps

AGFD, Heritage Database Management System

- List of special status species for Pima County, Arizona
- On-Line Environmental Review Tool for a list of special status species and special habitat elements in the vicinity of the project area
- Special status species abstracts
- Special status species distribution maps

Pima County

- Priority vulnerable species habitat requirements
- Sonoran Desert Conservation Plan Map



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- . 2010d. Species profile: Pima pineapple cactus (*Coryphantha scheeri robustispina*). Environmental Conservation Online System, <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=Q27M>. Accessed and updated 20 October 2010.



9.0 ADDITIONAL INFORMATION

Field notes and photographs, are on file at Pima County Department of Transportation.



10.0 SIGNATURE PAGE

PREPARER: I prepared this Biological Evaluation

A handwritten signature in black ink that reads "Robert S. DeBaca Ph.D.".

06 June 2011

Robert DeBaca, Ph.D.
URS Corporation
7720 North 16th Street, Suite 100
Phoenix, AZ 85024

Date

APPENDIX A
U.S. FISH AND WILDLIFE SERVICE
SPECIES LIST

Pima County

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
California Least Tern	<i>Sterna antillarum browni</i>	Endangered	Smallest of the North American Terns. Body length is 21 to 24 cm (8 to 9 inches) with a wingspan of 45 to 51cm (18 to 20 inches). Has black crown and loreal stripe on head, snowy white forehead and underside, and gray upperparts. Outer two primaries black, yellow or orange bill with black tip, and orange legs. Males have a wider dark loreal stripe but sexes mostly distinguished by behavior.	Maricopa, Mohave, Pima	< 2,000 ft	Open, bare or sparsely vegetated sand, sandbars, gravel pits, or exposed flats along shorelines of inland rivers, lakes, reservoirs, or drainage systems.	Breeding occasionally documented in Arizona; migrants may occur more frequently. Feeds primarily on fish in shallow waters and secondarily on invertebrates. Nests in a simple scrape on sandy or gravelly soil.
Chiricahua leopard frog	<i>Lithobates [Rana] chiricahuensis</i>	Threatened	Cream colored tubercles (spots) on a dark background on the rear of the thigh, dorsolateral folds that are interrupted and deflected medially, and a call given out of water distinguish this spotted frog from other leopard frogs.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, Navajo, Pima, Santa Cruz, Yavapai	3,300-8,900 ft	Streams, rivers, backwaters, ponds, and stock tanks that are mostly free from introduced fish, crayfish, and bullfrogs.	Requires permanent or nearly permanent water sources. On March 15, 2011, critical habitat was proposed in Apache, Cochise, Gila, Graham, Greenlee, Pima, Santa Cruz, and Yavapai counties in Arizona; and Catron, Hidalgo, Grant, Sierra, and Socorro counties in New Mexico.
Desert pupfish	<i>Cyprinodon macularius</i>	Endangered	Small (2 inches) smoothly rounded body shape with narrow vertical bars on the sides. Breeding males blue on head and sides with yellow on tail. Females and juveniles tan to olive colored back and silvery sides.	Cochise, Graham, Maricopa, Pima, Pinal, Santa Cruz, Yavapai	< 4,000 ft	Shallow springs, small streams, and marshes. Tolerates saline and warm water.	Two subspecies are recognized: Desert Pupfish (<i>C.m. macularis</i>) and Quitobaquito Pupfish (<i>C.m. eremus</i>). Critical habitat includes Quitobaquito Springs, Pima County, portions of San Felipe Creek, Carrizo Wash, and Fish Creek Wash, Imperial County, California.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Gila chub	<i>Gila intermedia</i>	Endangered	Deep compressed body, flat head. Dark olive-gray color above, silver sides. Endemic to Gila River Basin.	Cochise, Gila, Graham, Greenlee, Pinal, Santa Cruz, Yavapai	2,000-5,500 ft	Pools, springs, cienegas, and streams.	Found on multiple private lands, including the Nature Conservancy and the Audubon Society. Also occurs on Federal and state lands and in Sonora, Mexico. Critical habitat occurs in Cochise, Gila, Graham, Greenlee, Pima, Pinal, Santa Cruz, and Yavapai counties.
Gila topminnow	<i>Poeciliopsis occidentalis occidentalis</i>	Endangered	Small (2 inches), guppy-like, live bearing, lacks dark spots on its fins. Breeding males are jet black with yellow fins.	Cochise, Gila, Graham, Maricopa, Pima, Santa Cruz, Yavapai	< 4,500 ft	Small streams, springs, and cienegas vegetated shallows.	Species historically also occurred in backwaters of large rivers but is currently isolated to small streams and springs.
Huachuca water umbel	<i>Lilaeopsis schaffneriana ssp. recurva</i>	Endangered	Herbaceous, semi-aquatic perennial in the parsley family (Umbelliferae) with slender erect, hollow, leaves that grow from the nodes of creeping rhizomes. Flower: 3 to 10 flowered umbels arise from root nodes.	Cochise, Pima, Santa Cruz	3,500-6,500 ft	Cienegas, perennial low gradient streams, wetlands.	Species also occurs in adjacent Sonora, Mexico, west of the continental divide. Critical habitat in Cochise and Santa Cruz counties (64 FR 37441, July 12, 1999).
Jaguar	<i>Panthera onca</i>	Endangered	Largest species of cat native to Southwest. Muscular, with relatively short, massive limbs, and a deep-chested body. Usually cinnamon-buff in color with many black spots. Weights ranges from 90-300 lbs.	Cochise, Pima, Santa Cruz	1,600-9,000 ft	Found in Sonoran desertscrub up through subalpine conifer forest.	Also occurs in New Mexico. A Jaguar conservation team is being formed that is being led by Arizona and New Mexico state entities along with private organizations.
Kearney's blue star	<i>Amsonia kearneyana</i>	Endangered	A herbaceous perennial about 2 feet tall in the dogbane family (Apocynaceae). Thickened woody root and many pubescent (hairy) stems that rarely branch. Flowers: white terminal inflorescence in April and May.	Pima	3,600-3,800 ft	West-facing drainages in the Baboquivari Mountains.	Plants grow in stable, partially shaded, coarse alluvium along a dry wash in the Baboquivari Mountains. Range is extremely limited. Protected by Arizona Native Plant Law.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuena</i>	Endangered	Elongated muzzle, small leaf nose, and long tongue. Yellowish brown or gray above and cinnamon brown below. Tail minute and appears to be lacking. Easily disturbed.	Cochise, Gila, Graham, Greenlee, Maricopa, Pima, Pinal, Santa Cruz, Yuma	1,600-11,500 ft	Desert scrub habitat with agave and columnar cacti present as food plants.	Day roosts in caves and abandoned tunnels. Forages at night on nectar, pollen, and fruit of paniculate agaves and columnar cacti. This species is migratory and is present in Arizona usually from April to September and south of the border the remainder of the year.
Masked bobwhite	<i>Colinus virginianus ridgewayi</i>	Endangered	Males have a brick-red breast and black head and throat. Females are generally nondescript but resemble other races such as the Texas bobwhite.	Pima	1,000-4,000 ft	Desert grasslands with diversity of dense native grasses, forbs, and brush.	Species is closely associated with Prairie acacia (<i>Acacia angustissima</i>). Formerly occurred in Altar and Santa Cruz valleys, as well as Sonora, Mexico. Presently only known from reintroduced populations on Buenos Aires NWR.
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Threatened	Medium sized with dark eyes and no ear tufts. Brownish and heavily spotted with white or beige.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai	4,100-9,000 ft	Nests in canyons and dense forests with multi-layered foliage structure.	Generally nest in older forests of mixed conifer or ponderosa pine/gambel oak type, in canyons, and use variety of habitats for foraging. Sites with cool microclimates appear to be of importance or are preferred. Critical habitat was finalized on August 31, 2004 (69 FR 53182) in Arizona in Apache, Cochise, Coconino, Gila, Graham, Greenlee, Maricopa, Navajo, Pima, Pinal, Santa Cruz, and Yavapai counties.
Nichol Turk's head cactus	<i>Echinocactus horizonthalonius var. nicholii</i>	Endangered	Blue-green to yellowish-green, columnar, 18 inches tall, 8 inches in diameter. Spine clusters have 5 radial and 3 central spines; one curves downward and is short; 2 spines curve upward and are red or pale gray. Flowers: pink; fruit: woolly white.	Pima, Pinal	2,400-4,100 ft	Sonoran desertscrub.	Found in unshaded microsites in Sonoran desertscrub on dissected alluvial fans at the foot of limestone mountains and on inclined terraces and saddles on limestone mountain sides.
Ocelot	<i>Leopardus (=Felis) pardalis</i>	Endangered	Medium-sized spotted cat that is yellowish with black streaks and stripes running from front to back. Tail is spotted and about 1/2 the length of head and body. Face is less heavily streaked than the back and sides.	Cochise, Pima, Santa Cruz	< 8,000 ft	Desert scrub in Arizona. Humid tropical and subtropical forests, and savannahs in areas south of the U.S.	May persist in partly-cleared forests, second-growth woodland, and abandoned cultivated areas reverted to brush. Universal component is presence of dense cover. Unconfirmed reports of individuals in the southern part of the State continue to be received.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Pima pineapple cactus	<i>Coryphantha scheeri</i> var. <i>robustispina</i>	Endangered	Hemispherical stems 4-7 inches tall 3-4 inches diameter. Central spine 1 inch long straw colored hooked surrounded by 6-15 radial spines. Flower: yellow, salmon, or rarely white narrow floral tube.	Pima, Santa Cruz	2,300-5,000 ft	Sonoran desertscrub or semi-desert grassland communities.	Occurs in alluvial valleys or on hillsides in rocky to sandy or silty soils. This species can be confused with juvenile barrel cactus (<i>Ferocactus</i>). However, the spines of the later are flattened, in contrast with the round cross-section of the <i>Coryphantha</i> spines. About 80-90% of individuals occur on state or private land.
Sonoran pronghorn	<i>Antilocapra americana sonoriensis</i>	Endangered	Upperparts tan; underparts, rump, and two bands across the neck are white. Male has two black cheek pouches. Hoofed with slightly curved black horns having a single prong. Smallest and palest of the pronghorn subspecies.	Maricopa, Pima, Yuma	2,000-4,000 ft	Broad intermountain alluvial valleys with creosote-bursage and palo verde-mixed cacti associations.	Typically, bajadas are used as fawning areas and sandy dune areas provide food seasonally. Cacti (jumping cholla) appears to make up substantial part of diet. This subspecies also occurs in Mexico.
Southwestern willow flycatcher	<i>Empidonax traillii eximius</i>	Endangered	Small passerine (about 6 inches) grayish-green back and wings, whitish throat, light olive-gray breast and pale yellowish belly. Two wingbars visible. Eye-ring faint or absent.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma	< 8,500 ft	Cottonwood/willow and tamarisk vegetation communities along rivers and streams.	Migratory riparian-obligate species that occupies breeding habitat from late April to September. Distribution within its range is restricted to riparian corridors. Difficult to distinguish from other members of the <i>Empidonax</i> complex by sight alone. Training seminar required for those conducting flycatcher surveys. Critical habitat was finalized on October 19, 2005 (50 CFR 60886). In Arizona there are critical habitat segments in Apache, Cochise, Gila, Graham, Greenlee, Maricopa, Mohave, Pima, Pinal, and Yavapai counties.
Acuna cactus	<i>Echinomastus erectocentrus</i> var. <i>acunensis</i>	Candidate	Less than 12 inches tall; spine clusters borne on tubercles, each with a groove on the upper surface. 2-3 central spines and 12 radial spines. Radial spines are dirty white with maroon tips. Flowers pink to purple.	Pima, Pinal	1,300-2,000 ft	Well drained knolls and gravel ridges in Sonoran desertscrub.	Immature plants distinctly different from mature plants. Immatures are disc-shaped or spherical and have no central spines until they are about 1.5 inches.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Desert tortoise, Sonoran population	<i>Gopherus agassizii</i>	Candidate	Large herbivorous reptile with domed shell and round stumpy hind legs. The carapace is a dull brown or grey color and the plastron is unhinged, often pale yellow in coloration. Sonoran desert tortoises generally have a flatter carapace than tortoises in the Mohave population. Active in spring and during the monsoon; dormant in winter and mid-summer months.	Cochise, Gila, Graham, La Paz, Maricopa, Mohave, Pima, Pinal, Santa Cruz, Yavapai, Yuma	< 7,800 ft	Primarily rocky (often steep) hillsides and bajadas of Mohave and Sonoran desertscrub but may encroach into desert grassland, juniper woodland, interior chaparral habitats, and even pine communities. Washes and valley bottoms may be used in dispersal.	Desert tortoises that occur east and south of the Colorado River in Arizona are referred to as the Sonoran population. Individuals are found throughout their historic range; but populations are becoming increasingly fragmented due to threats to their habitat in valley bottoms, which are used for dispersal and exchange of genetic material.
Northern Mexican Gartersnake	<i>Thamnophis eques megalops</i>	Candidate	Background color ranges from olive, olive-brown, to olive-gray. Body has three yellow or light colored stripes running down the length of the body, darker towards tail. Species distinguished from other native gartersnakes by the lateral stripes reaching the 3rd and 4th scale rows. Paired black spots extend along dorsolateral fields.	Apache, Cochise, Coconino, Gila, Graham, Navajo, Pima, Pinal, Santa Cruz, Yavapai	130-8,500 ft	Cienegas, stock tanks, large-river riparian woodlands and forests, streamside gallery forests.	Core population areas in the U.S. include mid/upper Verde River drainage, mid/lower Tonto Creek, and the San Rafael Valley and surrounding area. Status on tribal lands unknown. Distributed south into Mexico along the Sierra Madre Occidental and Mexican Plateau. Strongly associated with the presence of a native prey base including leopard frogs and native fish.
Rosemont talussnail	<i>Sonorella rosemontensis</i>	Candidate	Terrestrial snail with shell height of 0.5 inches, diameter of 0.85 inches, and has about 4.5 whorls. The shell is polished, moderately solid, pale brown, fading around the umbilicus (belly button), with a light-bordered chestnut brown band. Positive identification of the species depends on examination of soft body parts.	Pima	~5,500 ft	Inhabits talus slopes comprised of volcanic rock and limestone.	The species is vulnerable to any disturbance that would remove talus, increase interstitial sedimentation, or change moisture conditions. The entire range of the species is located on lands designated for the purpose of hard rock mining.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Sonoyta mud turtle	<i>Kinosternon sonoriense longifemorale</i>	Candidate	Aquatic; dark, medium-sized; shell up to 7 inches long; head, neck, and limbs mottled; carapace is olive brown to dark brown; plastron hinged; long barbels on chin, webbed feet.	Pima	1,100 ft	Ponds and streams.	Found only in Quitobaquito Springs in Organ Pipe Cactus National Monument, Arizona. Species also occurs in Rio Sonoyta, Sonora, Mexico.
Tucson shovel-nosed snake	<i>Chionactis occipitalis klauberi</i>	Candidate	Small snake (10-17 inches total length) in the family Colubridae, with a shovel-shaped snout and an inset lower jaw. Overall coloring mimics coral snakes, with pale yellow to cream-colored body, 21 or more black or brown saddle-like bands across the back, and orange-red saddle-like bands in between. The subspecies is distinguished from the other subspecies in that these secondary orange-red crossbands are suffused with dark pigment, making them appear brown or partly black, and the black and red crossbands do not encircle the entire body.	Maricopa, Pima, Pinal	785-1,662 ft	Sonoran Desertscrub; associated with soft, sandy soils having sparse gravel.	Found in creosote-mesquite floodplain environments, finds refuge under desert shrubs, active during crepuscular (dawn and dusk) and daylight hours.

COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Candidate	Medium-sized bird with a slender, long-tailed profile, slightly down-curved bill that is blue-black with yellow on the lower half. Plumage is grayish-brown above and white below, with rufous primary flight feathers.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma	< 6,500 ft	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries).	Neotropical migrant that winters primarily in South America and breeds primarily in the U.S. (but also in southern Canada and northern Mexico). As a migrant it is rarely detected; can occur outside of riparian areas. Cuckoos are found nesting statewide, mostly below 5,000 feet in central, western, and southeastern Arizona. Concern for cuckoos are primarily focused upon alterations to its nesting and foraging habitat. Nesting cuckoos are associated with relatively dense, wooded, streamside riparian habitat, with varying combinations of Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk. Some cuckoos have also been detected nesting in velvet mesquite, netleaf hackberry, Arizona sycamore, Arizona alder, and some exotic neighborhood shade trees.
Gooddings onion	<i>Allium gooddingii</i>	Conservation Agreement	Herbaceous perennial plant; broad, flat, rather blunt leaves; flowering stalk 14-18 inches tall, flattened, and narrowly winged toward apex; fruit is broader than long; seeds are short and thick.	Apache, Greenlee, Pima	7,500-11,250 ft	Shaded sites on north-trending drainages, on slopes, or in narrow canyons, within mixed conifer and spruce fir forests.	Known from the White, Santa Catalina, and Chuska Mountains. Also found in New Mexico on the Lincoln and Gila National Forests. A Conservation Agreement between the Service and the Forest Service signed in February 1998.
San Xavier talussnail	<i>Sonorella eremita</i>	Conservation Agreement	Land snail, less than one inch in diameter (about .75 inches); round shell with 4.5 whorls; white to pinkish tint and chestnut-brown shoulder band.	Pima	3,850-3,920 ft	Inhabits a deep, northwest-facing limestone rockslide.	Restricted to 50 by 100 foot area of land privately owned in southeastern Arizona. A Conservation Agreement was finalized in 1995 and renewed in May 2008.

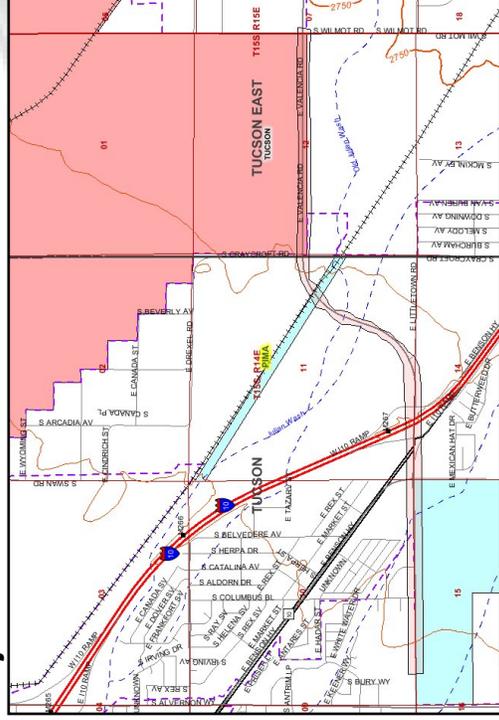
COMMON NAME	SCIENTIFIC NAME	STATUS	DESCRIPTION	COUNTY	ELEVATION	HABITAT	COMMENTS
American peregrine falcon	<i>Falco peregrinus anatum</i>	Delisted	A crow-sized falcon with slate blue-gray on the back and wings, and white on the underside; a black head with vertical "bandit's mask" pattern over the eyes; long pointed wings; and a long wailing call made during breeding. Very adept flyers and hunters, reaching diving speeds of 200 mph.	Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma	3,500-9,000 ft	Areas with rocky, steep cliffs, primarily near water, where prey (primarily shorebirds, songbirds, and waterfowl) concentrations are high. Nests are found on ledges of cliffs, and sometimes on man-made structures such as office towers and bridge abutments.	Species recovered with over 1,650 breeding birds in the US and Canada.
Cactus ferruginous pygmy-owl	<i>Glaucidium brasilianum cactorum</i>	Delisted; petitioned for relisting	Small reddish-brown owl with a cream-colored belly streaked with reddish-brown. Males average 2.6 oz and females average 2.6 oz. Length is approximately 6.5 in., including a relatively long tail. Lacks ear tufts, and has paired black spots on the back of the head.	Pima, Pinal	< 4,000 ft	Areas of desert woodlands with tall canopy cover. Primarily found in Sonoran desert scrub and occasionally in riparian drainages and woodlands within semi-desert grassland communities. Prefers to nest in cavities in saguaro cacti but has been found in low-density suburban developments that include natural open spaces.	Not recognized as a protected taxonomic entity under the Act, but protected from direct take of individuals and nests/eggs under the Migratory Bird Treaty Act. A 2006 petition for relisting under the Act is currently being evaluated. Due to low population numbers, captive breeding research was initiated in 2006 with some success.

APPENDIX B

AGFD ON-LINE ENVIRONMENTAL REVIEW

Arizona's On-line Environmental Review Tool
 Search ID: 20101008013380
 Project Name: valencia road with DM AFB
 Date: 10/8/2010 9:47:39 AM

Project Location



The Department appreciates the opportunity to provide in-depth comments and project review when additional information or environmental documentation becomes available.

Special Status Species Occurrences/Critical Habitat/Tribal Lands within 3 miles of Project Vicinity:

Name	Common Name	FWS	USFS	BLM	State
Athene cucularia hypugaea	Western Burrowing Owl	SC	S	S	
Buteo swainsoni	Swainson's Hawk		S	S	
Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S	S	WSC
Coryphantha scheeri var. robustispina	Prima Pineapple Cactus	LE			HS

Project Name: valencia road with DM AFB
Submitted By: Robert DeBaca
On behalf of: PIMA

Project Search ID: 20101008013380

Date: 10/8/2010 9:47:35 AM

Project Category: Transportation & Infrastructure, Road construction (including staging areas), Road widening (shoulders or additional or new lanes)
Project Coordinates (UTM Zone 12-NAD 83): 511000.774, 3555660.362 meter

Project Area: 116.852 acres

Project Perimeter: 10346.398 meter

County: PIMA

USGS 7.5 Minute Quadrangle ID: 1768

Quadrangle Name: TUCSON

Project locality is currently being scoped

Location Accuracy Disclaimer

Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Receipt is solely responsible for the project location and thus the correctness of the Project Review Receipt content.

Arizona's On-line Environmental Review Tool
Search ID: 20101008013380
Project Name: valencia road with DM AFB
Date: 10/8/2010 9:47:39 AM

Please review the entire receipt for project type recommendations and/or species or location information and retain a copy for future reference. If any of the information you provided did not accurately reflect this project, or if project plans change, another review should be conducted, as this determination may not be valid.

Arizona's On-line Environmental Review Tool:

1. This On-line Environmental Review Tool inquiry has generated recommendations regarding the potential impacts of your project on Special Status Species (SSS) and other wildlife of Arizona. SSS include all U.S. Fish and Wildlife Service federally listed, U.S. Bureau of Land Management sensitive, U.S. Forest Service sensitive, and Arizona Game and Fish Department (Department) recognized species of concern.
2. These recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation). These recommendations are preliminary in scope, designed to provide early considerations for all species of wildlife, pertinent to the project type you entered.
3. This receipt, generated by the automated On-line Environmental Review Tool does not constitute an official project review by Department biologists and planners. Further coordination may be necessary as appropriate under the National Environmental Policy Act (NEPA) and/or the Endangered Species Act (ESA).

The U.S. Fish and Wildlife Service (USFWS) has regulatory authority over all federally listed species under the ESA. Contact USFWS Ecological Services Offices: <http://arizonaes.fws.gov/>.

Phoenix Main Office
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Phoenix, AZ 85021
Phone 602-242-0210
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Tucson Sub-Office
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Tucson, AZ 85745
Phone 520-670-6144
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Flagstaff Sub-Office
323 N. Leroux Street, Suite 101
Flagstaff, AZ 86001
Phone 928-226-0614
Fax 928-226-1099

Disclaimer:

1. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area.
2. The Department's Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there.
3. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HDMS data contains information about species occurrences that have actually been reported to the Department.

Arizona Game and Fish Department Mission

To conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and

management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use by present and future generations.

Project Category: Transportation & Infrastructure, Road construction (including staging areas), Road widening (shoulders or additional or new lanes)

Project Type Recommendations:

All degraded and disturbed lands should be restored to their natural state. Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

Based on the project type entered; coordination with State Historic Preservation Office may be required
<http://azstateparks.com/SHPO/index.html>

Based on the project type entered; coordination with U.S. Army Corps of Engineers may be required
<http://www.spl.usace.army.mil/regulatory/phonedir.html>

During planning and construction, minimize potential introduction or

spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g. microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g. livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before and after project activities to reduce the spread of invasive species. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants
<http://www.azda.gov/PSD/quarantine5.htm>. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control:
<http://www.usda.gov/wps/portal/usdahome>. The Department regulates the importation, purchasing, and transportation of wildlife and fish (Restricted Live Wildlife), please refer to the hunting regulations for further information http://www.azgfd.gov/h_f/hunting_rules.shtml.

During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife.

Arizona's On-line Environmental Review Tool

Search ID: 20101008013380

Project Name: valencia road with DM AFB

Date: 10/8/2010 9:47:39 AM

Hydrological considerations: design culverts to minimize impacts to channel geometry, or design channel geometry (low flow, overbank, floodplains) and substrates to carry expected discharge using local drainages of appropriate size as templates. Aquatic wildlife considerations: reduce/minimize barriers to migration of amphibians or fish (e.g. eliminate falls). Terrestrial wildlife: washes and stream corridors often provide important corridors for movement. Overall culvert width, height, and length should be optimized for movement of the greatest number and diversity of species expected to utilize the passage. Culvert designs should consider moisture, light, and noise, while providing clear views at both ends to maximize utilization. For many species, fencing is an important design feature that can be utilized with culverts to funnel wildlife into these areas and minimize the potential for roadway collisions. Guidelines for culvert designs to facilitate wildlife passage can be found at <http://www.azgfd.gov/hgis/guidelines.aspx>.

Recommendations will be dependant upon goals of the fence project and the wildlife species expected to be impacted by the project. General guidelines for ensuring wildlife-friendly fences include: barbed wire on the top and bottom with the maximum fence height 42", minimum height for bottom 16". Modifications to this design may be considered for fencing anticipated to be routinely encountered by elk, bighorn sheep or pronghorn (e.g., Pronghorn fencing would require 18" minimum height on the bottom). Please refer to the Department's Fencing Guidelines located at <http://www.azgfd.gov/hgis/guidelines.aspx>.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

The Department requests further coordination to provide project/species specific recommendations, please contact Project Evaluation Program directly.

Project Location and/or Species recommendations:

Heritage Data Management System records indicate that one or more listed, proposed, or candidate species or Critical Habitat (Designated or Proposed) have been documented in the vicinity of your project (refer to page 1 of the receipt). Please contact:

Ecological Services Office
US Fish and Wildlife Service
2321 W. Royal Palm Rd.
Phoenix, AZ 85021-4951
Phone: 602-242-0210
Fax: 602-242-2513

Heritage Data Management System records indicate that western burrowing owls have been documented within the vicinity of your project area (refer to the species list on page 1 of the receipt). Please review the relocation procedures recommended for burrowing owls found on the Environmental Review Home Page: http://mirror-pole.com/burr_owl/bur_owl1.htm.

Recommendations Disclaimer:

1. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project.
2. These recommendations are proposed actions or guidelines to be considered during **preliminary project development**.
3. Additional site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our

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opportunity to review and evaluate additional project information and/or new project proposals.

5. The Department is interested in the conservation of all fish and wildlife resources, including those Special Status Species listed on this receipt, and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.

6. Further coordination requires the submittal of this initialed and signed Environmental Review Receipt with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map).

7. Upon receiving information by AZGFD, please allow 30 days for completion of project reviews. Mail requests to:

Project Evaluation Program, Habitat Branch

Arizona Game and Fish Department

5000 West Carefree Highway

Phoenix, Arizona 85086-5000

Phone Number: (623) 236-7600

Fax Number: (623) 236-7366

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1. This Environmental Review and project planning website was developed and intended for the purpose of screening projects for potential impacts on resources of special concern. By indicating your agreement to the terms of use for this website, you warrant that you will not use this website for any other purpose.

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3. The Department reserves the right at any time, without notice, to enhance, modify, alter, or suspend the website and to terminate or restrict your access to the website.

4. This Environmental Review is based on the project study area that was entered. The review must be redone if the project study area, location, or the type of project changes. If additional information becomes available, this review may need to be reconsidered.

5. A signed and initialed copy of the Environmental Review Receipt indicates that the entire receipt has been read by the signer of the Environmental Review Receipt.

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The Environmental Review and project planning web application operates on a complex State computer system. This system is monitored to ensure proper operation, to verify the functioning of applicable security features, and for other like purposes. Anyone using this system expressly consents to such monitoring and is advised that if such monitoring reveals possible evidence of criminal activity, system personnel may provide the evidence of such monitoring to law enforcement officials. Unauthorized attempts to upload or change information; to defeat or circumvent security measures; or to utilize this system for other than its intended purposes are prohibited.

This website maintains a record of each environmental review search result as well as all contact information. This information is maintained for internal tracking purposes. Information collected in this application will not be shared outside of the purposes of the Department.

If the Environmental Review Receipt and supporting material are not mailed to the Department or other appropriate agencies within six (6) months of the Project Review Receipt date, the receipt is considered to

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Project Name: valencia road with DM AFB
Date: 10/8/2010 9:47:39 AM

be null and void, and a new review must be initiated.

Print this Environmental Review Receipt using your Internet browser's print function and keep it for your records. Signature of this receipt indicates the signer has read and understands the information provided.

Signature: _____
Date: _____

Proposed Date of Implementation: _____

Please provide point of contact information regarding this Environmental Review.

Application or organization responsible for project implementation

Agency/organization: _____
Contact Name: _____
Address: _____
City, State, Zip: _____

Phone: _____
E-mail: _____
Person Conducting Search (if not applicant)
Agency/organization: _____
Contact Name: _____
Address: _____
City, State, Zip: _____
Phone: _____
E-mail: _____

APPENDIX C
ARIZONA STATE SENSITIVE SPECIES

State Listed Species

State listed species, referred to by the Arizona Game and Fish Department (AGFD) as Wildlife of Special Concern (WSC) in Arizona, are defined as species whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines, as described in Wildlife of Special Concern in Arizona (AGFD 1996, AGFD 1988).

Species Identification

As part of the environmental review process the AGFD on-line environmental review tool was accessed to determine special status species known to occur in the project vicinity (Appendix B). The AGFD on-line environmental review tool included a list of special status species known to occur within the project vicinity (Table 1). The AGFD review indicates that the Mexican long-tongued Bat (*Choeronycteris Mexicana*), listed as a WSC by the AGFD is documented as occurring within 3 miles of the project area. The Pima pineapple cactus (*Coryphantha scheeri var. robustispina*), listed as highly safeguarded, is addressed in the BE (Section 5.0 Species Evaluation).

The cactus ferruginous pygmy-owl was not identified in the AGFD on-line review, but the project area is within the species range. The existing habitat in the project area is not suitable for CFPOs, mainly due to a lack of suitably-sized vegetation to provide nest cavities, but also due to a lack of vegetation diversity, with almost 90 percent cover provided by creosote bush. Surveys were initiated in 2009; however, after one round of surveys, no suitable habitat was identified and further surveys were cancelled.

Table C-1. Special Status Species Occurrences within 3 miles of Project Vicinity

Common Name Scientific Name	United States Fish and Wildlife Service	State (Arizona Game and Fish Department) (Arizona Department of Agriculture)
Mexican Long-tongued Bat <i>Choeronycteris Mexicana</i>	Species of Concern	Wildlife Species of Concern
Pima Pineapple Cactus <i>Coryphantha scheeri var. robustispina</i>	Listed Endangered	Highly Safeguarded

The Mexican long-tongued bat is known to use bridge structures and culverts either as day or night roosts. Bats are also known to use the nests of cliff swallows (*Petrochelidon pyrrhonota*) for roosts. However, no indices of bats or cliff swallows were observed (e.g. guano droppings, nest remnants) during field surveys. In addition, pedestrian use and human disturbance levels in the project area reduces habitat suitability. The potential for state sensitive species to be

impacted by the project is unlikely because the project area does not contain useable habitat for these species.

Determination of Effects

After reviewing the current habitat requirements of the Mexican long-tongued bat, and the lack of roost sites found during pedestrian surveys of the project area, the proposed action is anticipated to have no effect on the Mexican long-tongued bat or its habitat. Based upon the absence of state listed species in the project area, no protection of state listed species is necessary for the proposed action.

Literature Cited

- Arizona Game and Fish Department. 1988. Threatened Native Wildlife in Arizona. Arizona Game and Fish Department Publication. Phoenix, Arizona 32 pp.
- . 1996. Wildlife of Special Concern in Arizona. Arizona Game and Fish Department Publication. Phoenix, Arizona 32 pp.

APPENDIX D
MIGRATORY BIRD TREATY ACT

Migratory Bird Species

The Migratory Bird Treaty Act implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. The Act makes it unlawful to pursue, hunt, take, capture, kill or sell birds listed therein (“migratory birds:). The statute does not discriminate between live or dead birds and also grants full protection to any bird parts including feathers, eggs and nests.

Take is defined as “to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities.” A take does not include habitat destruction or alteration, as long as there is not a direct taking of birds, nests, eggs, or parts thereof.

Birds protected under the act include all common songbirds, waterfowl, shorebirds, hawks, owls, eagles, ravens, crows, native doves and pigeons, swifts, martins, swallows and others, including their body parts (feathers, plumes, etc.), nests, and eggs. A complete list of protected species is found at 50 CFR 10.13.

Activities which are most likely to result in take of migratory birds as a result of the proposed action include, but are not limited to, clearing or grubbing of migratory bird nesting habitat during the nesting season when eggs or young are likely to be present.

Species Identification

The list of migratory bird species reviewed in this report was compiled from a complete list of protected species is found at 50 CFR 10.13. In addition, the Arizona Game and Fish Department (AGFD) provided a list of current occurrence records of special status species, including migratory bird species that have been documented within 3 miles of the project area. The AGFD review indicates that the western burrowing owl (*Athena cunicularia hypugaea*), listed as a species of concern by the USFWS and protected by the Migratory Bird Treaty Act, is documented as occurring within 3 miles of the project area.

Life History Information

Description: A small ground-dwelling owl with a round head and no ear tufts. They have white eyebrows, yellow eyes, and long legs. The owl is sandy colored on the head, back, and upperparts of the wings and white-to-cream with barring on the breast and belly and a prominent white chin stripe. They have a rounded head, and yellow eyes with white eyebrows. The young are brown on the head, back, and wings with a white belly and chest. They molt into an adult-like plumage during their first summer. Burrowing owls are comparatively easy to see because they are often active in daylight, and are surprisingly bold and approachable. The females are usually darker than the males.

Range within Arizona: Occurs locally in open areas, generally year-round, with only a few winter records on the Colorado Plateau in the northeastern part of the state. From the Navajo Nation, broad valleys near Seligman, along the bottomlands of the Colorado River, the lower Colorado River valley, the Yuma area, southern and southeastern Arizona, and agricultural areas of Maricopa and Pinal Counties.

Food Habitats: Burrowing owls are opportunistic feeders, taking both invertebrates and vertebrates. In Arizona, they feed primarily on large insects and small mammals, as well as fish, reptiles, amphibians, birds and even prickly pear cactus seeds. Insects are often taken during daylight, small mammals taken more often after dark. Foraging microhabitat typically shortgrass, mowed, or overgrazed pastures. Drinking observed in the wild with increases in ambient temperatures.

Habitat: Variable in open, well-drained grasslands, steppes, deserts, prairies, and agricultural lands, often associated with burrowing mammals. Sometimes found in open areas such as vacant lots near human habitation, golf courses or airports.

Burrowing Owl Habitat Survey

The field reconnaissance of the project area was conducted October 7, 2010 by PCDOT's consultant (Robert DeBaca, URS Corporation). The project area was surveyed for the presence of burrowing owls and burrow sites. Results of the habitat survey indicate no burrowing owls or burrow sites were observed in the project area.

Determination of Effects

After reviewing the current habitat requirements of the burrowing owl, and the lack of burrowing owls and burrow sites found during pedestrian surveys of the project area, the proposed action is anticipated to have "no effect" on the burrowing owl or its habitat. USFWS will be provided a copy of this document for review.

APPENDIX E

PIMA COUNTY PROTECTED NATIVE VEGETATION

Protected Native Plants

A survey for native plants within the project area was completed as part of the Environmental Sensitive Roadway Design Guidelines (Pima County 2003).

The field reconnaissance of the project area was conducted on 7 October 2010 by PCDOT's consultant (Robert DeBaca, URS Corporation). The following protected native plants were observed in the project area during field reconnaissance for the BE.

<i>Acacia constricta</i>	White-thorn Acacia
<i>Acacia greggii</i>	Catclaw Acacia
<i>Celtis pallida</i>	Desert Hackberry
<i>Cercidium microphyllum</i>	Foothill Paloverde
<i>Cylindropuntia arbuscula</i>	Arizona Pencil Cholla
<i>Cylindropuntia bigelovii</i>	Teddy Bear Cholla
<i>Cylindropuntia fulgida</i> var. <i>fulgida</i>	Chainfruit Cholla
<i>Ferocactus wislizenii</i>	Fishhook Barrel Cactus
<i>Fouquieria splendens</i>	Ocotillo
<i>Opuntia phaeacantha</i>	Prickly Pear Cactus
<i>Prosopis velutina</i>	Velvet Mesquite

To comply with the Arizona Native Plant Law, Pima County will file a Notice of Intent with the Arizona Department of Agriculture for the removal of applicable native plants. The Notice of Intent will be filed 60 days prior to the removal of native plants.

Implementation of the project Landscape Plan will include placement of new vegetation, including saguaros, ironwoods, and riparian plant species. The landscape plan is expected to match the vegetation density of the undisturbed surrounding areas and approximate mitigation densities of Pima County's Environmentally Sensitive Roadway Design Guidelines.

Invasive Plant Species

Buffelgrass [invasive plant species] is found in the project area and could be disturbed during construction. A Buffelgrass Eradication plan would be completed to address treatment of infested areas. In addition, this project will incorporate Best Management Practices in order to prevent the introduction and spread of invasive species.

APPENDIX F
GROUND PHOTOGRAPHS



Photo 1 - Non-native grasses and native shrubs west of South Swan Road/East Benson Highway (looking east).



Photo 2 - Roadside vegetation dominated by non-native grasses and native shrubs west of South Swan Road/East Benson Highway (looking west).



Photo 3 - Desert Scrub vegetation in section 15. Dominant species are creosotebush, whitethorn acacia, and mesquite.



Photo 4 - Roadside disturbance and vegetation on north side of Valencia Road, about 250 meters west of Benson Highway.



Photo 5 - Disturbance related vegetation on south side of Valencia Road at I-10 interchange.



Photo 6 - Disturbance related vegetation on south side of Valencia Road near I-10 interchange.



Photo 7 - Disturbance related vegetation on north side of Valencia Rd at I-10 (looking west toward Benson Highway).



Photo 8 - Succulent and desert scrub vegetation outside project limits near Littletown Road.



Photo 9 - Disturbance related vegetation in project limits near Littleton Road. Grass in mid- and foreground is inland salt grass (*Distichlis spicata*).



Photo 10 - Succulents and desert scrub in project area north of Valencia Road (looking north).



Photo 11 - Disturbance-related vegetation in project limits at Julian Wash. View looking northeast from southern side of Valencia Road. Salt bush, Mesquite, and burrobush are in fore and midground.



Photo 12 - North side of Valencia Road viewing embankment for railroad bridge. Buffelgrass dominates the slope



Photo 13 - Railroad underpass with Russian thistle, buffelgrass, and Mexican paloverde dominating the vegetation.



Photo 14 - Mesquite and creosotebush dominate the floodplain of Julian Wash. Buffelgrass is common throughout the flats and embankment of the railroad overpass. Photo taken from south side of Valencia Road looking northwest.

APPENDIX G

PIMA COUNTY PRIORITY VULNERABLE SPECIES

PRIORITY VULNERABLE SPECIES

The list of Priority Vulnerable Species (PVS) used in this report was developed from the Pima County Multi-Species Conservation Plan (MSCP). The list contains 56 species that have been identified as PVS and evaluated in the Pima County MSCP. These species include nine mammals, eight birds, two amphibians, eight reptiles, six fish, sixteen invertebrates, and seven plants.

Species	Habitat Requirements	Modeled Potential Habitat	Priority Conservation Area	Subject Property
Abert's towhee <i>Pipilo aberti</i>	Prefers Sonoran Riparian Deciduous Woodlands and Riparian Scrubland with a dense understory of shrubs.	None	None	The subject property does not contain riparian or woodland habitat known to support the Abert's towhee. Riparian scrub vegetation in the project area would not be impacted by the proposed project.
Acuna cactus <i>Echinomastus erectocentrus</i> var. <i>acunensis</i>	Well-drained knolls and gravel ridges in Sonoran desertscrub. Populations are known only from western Pima to Maricopa, and Pinal counties, including Organ Pipe Cactus National Monument, Ajo, Coffee Pot Mountain, and Florence.	Low	None	The subject property is outside the known range of the Acuna cactus.
Allen's big-eared bat <i>Idionycteris phyllotis</i>	Found most often in ponderosa pine, pinyon-juniper, Mexican woodland and riparian areas of sycamores, cottonwoods and willows. Has also been found in white fir and in Mohave desertscrub. Boulder piles, cliffs, rocky outcrops or lava flows at or near most habitat locations. Typically found along streams or over ponds where the bats may be seeking insects, water or both. Roosts in caves and abandoned mineshafts.	Low	None	The subject property and vicinity does not contain woodland and riparian areas of sycamores, cottonwoods and willows. There are no caves or mineshafts in the project area and vicinity.
Arizona shrew <i>Sorex arizonae</i>	This species is known only from high-elevation (above 5,500 ft) locations in areas with downed woody debris, generally near surface water along drainages in mountain canyons.	Low	None	The subject property and vicinity are below the 5,500 foot elevation range of the Arizona shrew.

Species	Habitat Requirements	Modeled Potential Habitat	Priority Conservation Area	Subject Property
Bell's vireo <i>Vireo bellii</i>	Prefers dense, low, shrubby vegetation in riparian areas.	None	None	The subject property does not contain riparian habitat known to support the Bell's vireo. Riparian scrub vegetation in the project area would not be impacted by the proposed project.
Cactus ferruginous pygmy-owl <i>Glaucidium brasilianum cactorum</i>	The pygmy-owl has been found in riverbottom woodlands, and paloverde cacti-mixed scrub associations of the Sonoran desert.	Low	None	The subject property does contain riparian or desertscrub habitat known to support the cactus ferruginous pygmy-owl.
California leaf-nosed bat <i>Macrotus californicus</i>	Mostly found in the Sonoran desertscrub; primary summer and winter range essentially the same; primarily roost in mines, caves, and rock shelters.	Low	None	The subject property does not contain desertscrub or roosting habitat known to support the California leaf-nosed bat.
Chiricahua leopard frog <i>Rana chiricahuensis</i>	Streams, rivers, backwaters, ponds, and stock tanks that are mostly free from introduced fish, crayfish, and bullfrogs. Require permanent or nearly permanent water sources.	None	None	The subject property and vicinity does not contain streams, backwaters, ponds, and stock tanks that resemble those known to provide habitat for the Chiricahua leopard frog.
Desert box turtle <i>Terrapene ornata luteola</i>	This species occurs in grasslands and desert grasslands and inhabits arid and semi-arid treeless plains and rolling grass and shrub land where soils are sandy.	Medium	None	The subject property does not contain grassland habitat known to support the desert box turtle.
Desert pupfish <i>Cyprinodon macularius</i>	Shallow springs, small streams, and marshes. Tolerates saline and warm water.	None	None	Subject property and vicinity does not contain streams, springs, or marshes required by the desert pupfish.
Desert sucker <i>Catostomus clarki</i>	Found in rapids and flowing pools of streams and rivers primarily over bottoms of gravel-rubble with sandy silt in the interstices.	None	None	Subject property and vicinity does not contain streams or pools required by the desert sucker.

Species	Habitat Requirements	Modeled Potential Habitat	Priority Conservation Area	Subject Property
Gentry indigo bush <i>Dalea tentaculoides</i>	This species occurs along canyon bottoms on cobble terraces that are subject to occasional flooding, often occurring in disturbance-prone environments.	None	None	The subject property and vicinity does not contain canyon habitat known to support the gentry indigo bush.
Giant spotted whiptail <i>Cnemidophorus burti stictogrammus</i>	This species occurs in lower Sonoran (chiefly riparian areas) and upper Sonoran life zones in dense, shrubby vegetation often near streams.	None	None	The subject property and vicinity does not contain riparian habitat known to support the giant spotted whiptail.
Gila chub <i>Gila intermedia</i>	Pools, springs, cienegas, and streams between 2,000 and 3,500 ft.	None	None	The subject property and vicinity does not contain pools, springs, cienegas or streams required by the Gila chub
Gila topminnow <i>Poeciliopsis occidentalis occidentalis</i>	Small streams, springs, cienegas, and vegetated shallows below 4,500 ft.	None	None	The subject property and vicinity does not contain streams, springs, or cienegas required by the Gila topminnow.
Ground snake <i>Sonora semiannulata</i>	Desert grassland and mesquite thicket valley floors and in grassland to encinal slopes.	None	None	The subject property does not contain grassland or mesquite thicket habitat known to support the ground snake.
Huachuca water umbel <i>Lilaeopsis schaffneriana</i> ssp. <i>recurva</i>	Cienegas and associated vegetation within Sonoran desertscrub, grassland, or oak woodland; and conifer forest between 4,000 to 6,500 ft.	None	None	The subject property and vicinity does not contain Cienegas, perennial low gradient streams, wetlands that are known to support Huachuca water umbel.
Invertebrates <i>Sonorella</i> spp.	<i>Sonorella</i> spp. lives in a deep, limestone rockslide in Pima County, Arizona. Its habitat is protected from drying effects of the sun by outcrops of limestone and decomposed granite to the northeast and southwest, and by the hill itself to the southeast. The vegetation, slope of the hillside, and depth of the slide provide necessary moisture conditions.	NA	NA	The subject does not contain limestone rockslides known to support <i>Sonorella</i> spp. Limestone outcrops in the project vicinity would not be impacted by the proposed project.

Species	Habitat Requirements	Modeled Potential Habitat	Priority Conservation Area	Subject Property
Lesser long-nosed bat <i>Leptonycteris curasoae yerbabuena</i>	Desert scrub habitat with agave and columnar cacti present as food plants. Day roosts in caves and abandoned tunnels. Forages at night on nectar, pollen, and fruit of paniculate agaves and columnar cacti. This species is migratory and is present in Arizona usually from April to September and south of the border the remainder of the year.	Medium	None	The subject property does not contain agaves or columnar cacti used as food plants. The subject property does not contain caves or abandoned tunnels used for day roosts. Forage plants in the project vicinity would not be impacted.
Longfin dace <i>Agosia chrysogaster</i>	Wide ranging, from intermittent low-desert streams to clear and cool brooks at higher elevations. Longfin dace tend to occupy relatively small streams.	None	None	The subject property and vicinity does not contain intermittent streams required by the longfin dace.
Lowland leopard frog <i>Rana yavapaiensis</i>	Inhabit aquatic systems from desert grasslands to pinyon-juniper. They are habitat generalists and breed in a variety of natural and man-made aquatic systems. Natural systems include rivers, permanent streams, permanent pools in intermittent streams, beaver ponds, cienegas, and springs, while man-made systems include earthen cattle tanks, livestock drinkers, canals, irrigation sloughs, wells, mine adits, abandoned swimming pools, and ornamental backyard ponds.	Medium	None	The subject property and vicinity does not contain aquatic habitats required by the lowland leopard frog.
Merriam's mouse <i>Peromyscus merriami</i>	Found primarily in mesquite bosque. Also found in thick stands of cholla, prickly pear, paloverde, and grasses.	Medium	None	The subject property does not contain mesquite bosque known to support the Merriam's mouse. Dense cholla and prickly pear vegetation is located in the project area.
Mexican gartersnake <i>Thamnophis eques megalops</i>	Most abundant in densely vegetated habitat surrounding cienegas, cienega-streams, and stock tanks and in or near water along streams in valley floors and generally open areas, but not in steep mountain canyon stream habitat.	None	None	The subject property and vicinity does not contain aquatic habitat known to support the Mexican gartersnake.

Species	Habitat Requirements	Modeled Potential Habitat	Priority Conservation Area	Subject Property
<p>Mexican long-tongued bat <i>Choeronycteris mexicana</i></p>	<p>Canyons of mixed oak-conifer forests in mountains rising from the desert. Caves and abandoned mines are favored daytime roosts. They are often also found in shallow caves or rock shelters. A few found in paloverde-saguaro areas.</p>	<p>Low</p>	<p>None</p>	<p>The subject property does not contain agave or columnar cacti used as food plants. Forage plants in the project vicinity would not be impacted.</p>
<p>Needle-spined pineapple cactus <i>Echinomastus erectocentrus</i> var. <i>erectocentrus</i></p>	<p>Found in light-colored gravel on gentle slopes, hills and alluvial fans in upland desert or semi-desert grassland. Found in light-colored gravel, of felsic volcanics, granite, or limestone. Alluvial soils with rock and gravel cover over sandstone conglomerate; also limestone. Occurs mainly in southeast Pima and western Cochise counties.</p>	<p>None</p>	<p>None</p>	<p>The subject property is outside the range of the needle-spined pineapple cactus. The subject property does not contain gentle slopes, hills and alluvial fans in upland desert or semi-desert grassland that are known to the support the needle-spined pineapple cactus.</p>
<p>Nichol Turk's head cactus <i>Echinocactus horizionthalonius</i> var. <i>nicholii</i></p>	<p>Unshaded microsities within Sonoran desertscrub on dissected alluvial fans at the foot of limestone mountains and on inclined terraces and saddles on limestone mountainsides. Populations are known only from the Waterman Mountains in north central Pima and Vekol Mountains in southwestern Pinal counties.</p>	<p>None</p>	<p>None</p>	<p>The subject property is outside the known range of the Nichol's Turk's head cactus. The subject property and vicinity does not contain limestone mountains or foothills that are known to the support the Nichol Turk's head cactus.</p>
<p>Organ Pipe shovel-nosed snake <i>Chionactis palarostris organica</i></p>	<p>Found in a very limited portion of the paloverde-cacti-mixed scrub series of the Arizona Upland subdivision of the Sonoran desert scrub biome. Frequents more gravelly soils on bajadas and hilly terrain. Known only from Sonoyta-Ajo road in Organ Pipe Cactus National Monument and the surrounding area, from Mexican U.S. border to 23 miles north.</p>	<p>None</p>	<p>None</p>	<p>The subject property is outside the geographic range of the Organ Pipe shovel-nosed snake.</p>

Species	Habitat Requirements	Modeled Potential Habitat	Priority Conservation Area	Subject Property
Pale Townsend's big-eared bat <i>Plecotus townsendii pallescens</i>	Summer day roosts are found in caves and mines from desertscrub up to woodlands and coniferous forests. Night roosts may often be in abandoned buildings. In winter, they hibernate in cold caves, lava tubes and mines mostly in uplands and mountains from the vicinity of the Grand Canyon to the southeastern part of the state.	None	None	The subject property does not contain desertscrub habitat, caves, or mines known to support the pale Townsend's big-eared bat. Desertscrub vegetation in the project vicinity would not be impacted.
Pima pineapple cactus <i>Coryphantha scheeri</i> var. <i>robustispina</i>	Alluvial basins or on hillsides in semidesert grassland and Sonoran desertscrub in southern Arizona and northern Mexico. The species range does not extend north of Tucson, Arizona.	Low	None	The subject property does contain low potential habitat for the Pima pineapple cactus. No cactus was observed during surveys of the subject property.
Red-backed whiptail <i>Cnemidophorus burti xanthonotus</i>	High desert mountain scrub and grasslands with junipers or other scrub trees. Canyons with dense scrub are also used.	None	None	The subject property and vicinity does not contain vegetation communities known to support the red-backed whiptail.
Rufous-winged sparrow <i>Aimophila carpalis</i>	Flat or gently hilly Sonoran desert scrub and Sinaloan thorn scrub, characterized by scattered spiny trees and shrubs.	Low	None	The subject property does contain low potential habitat for the Rufous-winged sparrow.
Sonora sucker <i>Catostomus insignis</i>	Requires lentic and pool habitats with gravel-rubble bottoms.	None	None	The subject property and vicinity does not contain aquatic habitats known to support Sonora sucker.
Sonoran desert tortoise <i>Gopherus agassizii</i> (Sonoran Population)	Occurs primarily on rocky slopes and bajadas of Mojave and Sonoran desertscrub. Caliche caves in incised, cut banks of washes (arroyos) are also used for shelter sites, especially in the Lower Colorado River Valley subdivision. Shelter sites are rarely found in shallow soils.	None	None	The subject property does not contain habitat known to support the Sonoran desert tortoise.

Species	Habitat Requirements	Modeled Potential Habitat	Priority Conservation Area	Subject Property
Southern yellow bat <i>Lasiurus xanthinus = ega</i>	Found primarily in association with planted fan palms in residential and park areas. Also found in riparian deciduous forests and woodlands.	High	None	The subject property does contain vegetation known to support the southern yellow bat. The proposed action would result in minimal disturbance of riparian vegetation along Julian Wash.
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	Cottonwood/willow and tamarisk vegetation communities along rivers and streams below 8,500 ft.	None	None	The subject property and vicinity does not contain riparian vegetation known to support the Southwestern willow flycatcher.
Swainson's hawk <i>Buteo swainsoni</i>	Grasslands, Semidesert Grasslands, and Savanna Grassland, either apart or intermixed with open desertscrub habitats of the Sonoran, Mohave, Chihuahuan, and Great Basin Deserts. Forage in open stands of grass dominated vegetation, sparse shrub-lands, and small open woodlands.	Medium	None	The subject property does not contain vegetation known to support the Swainson's hawk.
Tucson shovel-nosed snake <i>Chionactis occipitalis klauberi</i>	Found in flat and sparsely vegetated areas with fine, wind-blown sand, such as dunes, washes, sandy flats, loose soil. Not found in rocky desert terrain.	Medium	None	The subject property and vicinity does not contain sand dunes and similar habitat known to support the Tucson shovel-nosed snake.
Tumamoc globeberry <i>Tumamoca macdougalii</i>	Occurs in xeric situations, in the shade of a variety of nurse plants along gullies and sandy washes of hills and valleys in Sonoran desertscrub and Sinaloan thornscrub communities.	Low	None	The subject property does not contain sand wash habitat known to support the Tumamoc globeberry.
Western Burrowing owl <i>Athene cunicularia hypugaea</i>	Variable in open, well-drained grasslands, steppes, deserts, prairies, and agricultural lands, often associated with burrowing mammals. Sometimes in open areas such as vacant lots near human habitation, golf courses or airports.	High	None	The subject property and vicinity does contain open habitat and disturbed habitat known to support the Burrowing owl. No burrowing owl or burrow sites were observed during surveys of the subject property.

Species	Habitat Requirements	Modeled Potential Habitat	Priority Conservation Area	Subject Property
Western red bat <i>Lasiurus blossevillii</i>	Riparian and other wooded areas. Roosts by day in trees. Summer roosts usually in tree foliage, sometimes in leafy shrubs or herbs. Often found in trees of fruit orchards. May also roost in saguaro boots and occasionally in cave-like situations although they generally avoid caves and buildings during both summer/winter.	Low	None	The subject property does not contain riparian, woodlands, or saguaro known to support the western red bat. Potential habitat in the vicinity of the subject property would not be impacted.
Yellow-billed cuckoo <i>Coccyzus americanus</i>	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk) at elevations less than 6,600 ft.	None	None	The subject property and vicinity does not contain riparian vegetation known to support the yellow-billed cuckoo.